THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

Vol. VII. CHICAGO, SEPTEMBER 25, 1886. No. 13.

ORIGINAL ARTICLES.

VENOUS BLOOD TUMORS OF THE CRANIUM

in Communication with the Intra-Cranial Venous Circulation, Especially the Sinuses of the Dura Mater.

BY WM. M. MASTIN, M.D.,

OF MOBILE, ALA.

(Continued from page 320.)

III.—TRAUMATIC CLASS.

My researches in the traumatic group have been rewarded by the gathering together of several well authenticated and important records.

One of the most typical, as well as the earliest, instances, is that related by Percival Pott[8] ("Chirurgical Works," first Amer. from last London edit., vol. i, p. 132, Phila., 1819; also French edition, t. 1, p. 151, 1760):

A boy, 8 years of age, son of a Jew merchant of this city, received a blow on his head with a stick. This made him giddy for a few minutes, but there was no bleeding, no external wound, and but little pain, and he concealed the fact of there being a swelling over that portion of his head until it was discovered by his barber. In the centre of the top of his head was a tumor almost the size of a walnut; indolent, had a dull kind of pulsation, and palpably contained fluid. In the presence of Serjeant Amyand and Mr. Shipton the tumor was divided with a knife and a quantity of blood discharged; but when the swelling was emptied it was found that the blood continued to flow, plainly not from the scalp wound, but from the bottom of the cavity. Examination now showed that the saggital suture was fractured, and that a portion of the displaced fragment of bone was forced into the sinus, and by the sides of which the blood issued forth. Attempts to extract this fragment failed. By advice of the consultants, a small perforation was made on one side of the suture, but through this the point of the elevator could not be introduced so as to remove the broken piece. and so the trephine was applied on the other side of the suture, but with like result. At last it was decided to risk the hazard of wounding the sinus (which was, indeed, already wounded by the broken bone), and enclose the suture within the circle of the trephine. This was done, but the button of bone came away in pieces, and left the original perforating fragment still piercing the sinus. This fragment being withdrawn by means of forceps, a flux of blood followed, but a dossil of dry lint controlled it. The patient recovered.

There are very many cases similar, if not exactly analogous, to this case, to be found in surgical literature; and among the most striking of which are those mentioned by Guthrie (Commentaries on Surgery, etc., p. 349, Amer. ed.), and M. Mouton (Mem. Royal Acad. Surg. of France, Sydenham Edition, p. 8).

M. Azam (Dupont, op. cit., p. 20) reports two cases of this accident which came under his observation, as follows:

C.,[9] age 22; miller, robust; entered the Hôpital Saint-André, service of M. Hirigoyen, Nov. 11, 1850. Situated on top of the frontal region, a little to the right of median line, was a tumor of the dimensions of a large nut. It was irregularly round, manifest fluctuation, but no discoloration of skin. Gentle pressure with the palm of the hand reduces it completely in two or three minutes, after which the skin remains empty and flaccid, and is also very thin and soft. Hence one can easily recognize an irregularly circular depression across it, with salient and unequal edges. The patient reduces it easily himself, and it disappears when the head is thrown backward and reappears with the forward inclination. The forward posture cannot be maintained for any length of time on account of vertigo, which accompanies this position. No bruit or pulsation, but seems a little more tense during the respiratory movements. I have thought that I perceived an obscure blowing sound in the tract of the superior longitudinal sinus when tumor was rapidly reduced by the patient, but my confrères could not verify it. No pain, and were it not for the deformity with the vertigo whilst bending forward, he would not be inconvenienced by its presence.

As to its origin he reported that, at the age of 15 years old, he was kicked by a horse in the frontal region. Did not lose consciousness, and even continued to follow his occupation—it being several days thereafter before he discovered this tumor, which has always presented its present appearance. He had consulted another physician some time previously, who made an exploratory puncture, which was followed by a jet of blood. This was easily arrested. Nov. 20, M. Hirigoyen punctured it with a lancet.

[8] Reported in previous paper.

[9] Reported in my first article.

Blood spirted out, having all the characters of venous blood. A probe introduced now discovered a depression in the bone and some roughnesses, although the bone is not denuded, but covered by a thick, soft membrane. No orifice of communication with interior of skull is discoverable, but such must exist, and is probably with the superior longitudinal sinus. Hæmorrhage easily controlled, and skin wound healed rapidly. Pressure over tumor was employed for twenty days without result, and the patient left the hospital in an unchanged condition. Saw him twice afterwards, the last time in 1857, and tumor in same condition. The avoidance of any operation, and the use of local pressure, was advised.

The next is the second case[10] of M. Azam (Dupont, loc. cit.):

Jeanne T., of the *Bourg-sur-Gironde*, age 60 years, consulted the 'Charity Committee' of the Medical Society of Bordeaux in March, 1854, about a tumor situated in the frontal region. She stated that about eighteen months previously, whilst at work in the field, she stepped upon a rake, which flying up, the end of the handle struck her with considerable force on the forehead. The pain was intense, but she did not lose consciousness. The apparent contusion was relieved by ordinary measures without medical attention. Twenty to twenty-five days afterwards she recognized the existence of a tumor at point of contusion. This was soft, size of a small nut, and hardened and increased in volume when she lowered her head. No headache. Did not consult a physician until after three months had elapsed, at which time the skin covering the tumor becoming thinner and of a violet color, she consulted M. Gaignerat, of Bourg, who punctured it, and, according to her statement, it bled most profusely, but a bit of English taffeta sufficed to staunch it. She presented herself now before the Medical Society. At this time the tumor, situated on the median frontal line, near hair margin, was about the size of the half of an ordinary nut; soft and fluctuating; slightly violaceous in color; without pulsation or bruit, and conveying the sensation of a skin pouch containing a spongy substance. It becomes tense when the head is bowed down or lowered, and a continuance of this position causes dizziness. It softens and slowly diminishes under pressure by the hand or fingers. It is very evident that the fluid passes into the skull. After reduction of tumor there remains under the skin a soft tissue which prevents any close examination of the underlying bone. Punctured it with a small trocar; only a small quantity of venous blood escaped. Manipulating the canula in different directions showed that the tumor was not formed of a single pouch, but of a spongy tissue composed of large cells. This explains the slowness with which the fluid trickled out, and which, also, evidently passed through a narrow passage in the bone into the skull cavity. I could not discern the opening, nor did I recognize any rugosities or denudation of the bone.

The annexed case[11] of M. Hutin, which occurred at the Hôpital des Invalides, is reported by Dr. Gustave Dufour (*Compt. rend. et Mém. de la Soc. de Biol.*, t. III, p. 155, 1851):

Achille Maximilien, Marquis de W., Comte d'I., born 1770, at Paris; entered infantry service in 1792. In 1799, in charging a redoubt in the Piedmont, he received a blow from the butt-end of a musket on right side of forehead about 3 cm. from median line. He remained unconscious for twenty-four hours. When he regained his senses he was told by the surgeon in attendance that there was a fracture of the skull, and the lesion was very grave. There was no wound of the integument, but a deep depression under the skin was quite perceptible to the touch. During the next year he was an inmate of different hospitals, and received divers forms of treatment, especially local pressure. The ultimate result of the wound was an infirmity which incapacitated him from following the profession of arms. When he leaned forward with head inclined towards the ground, he would feel a swelling form on the site of the wound, having the volume of a nut, of a violet color, and which would disappear spontaneously when he again assumed the upright position. In 1814 he gained admittance to the Hôpital des Invalides, and in 1847 M. Hutin, then becoming surgeon-in-chief, was peculiarly interested in his case, and added himself the following notes to the history of the case: 'Cicatrix not apparent; osseous depression very marked. The conditon is, doubtless, the result of absorption of the diploë and the approximation of the two tables of the frontal bone. The pouch is small, formed at the expense of the skin, and is not apparent when the soldier is standing, sitting, or reclining on his back; but when he bends forward with the head lowered, the pouch makes its appearance and attains the volume of half an egg. It is livid in color; is formed, evidently, as are cysts in contused parts, and is dependent on a communication with the superior longitudinal or some other sinus.'

I learned that this old man, notwithwithstanding his age of 81 years, was in perfect mental and physical health. October 28, 1851. Seized with erysipelas of neck and thorax, complicated with chronic bronchitis, and died November 3.

Necropsy—Head.—No visible traces of erysipelatous action. Normal in size and contour. On forehead, 2 cm. below hair margin, and to right of median line, is a cutaneous space about 2 cm. in diameter, which is rendered distinct from surrounding skin by its rosy color, and this corresponds to a clearly outlined osseous depression beneath. Lowering the head now fails to produce the phenomenon which was so easily brought about during life. *Brain.*—Sound and without traces of old or recent apoplectic clots; white and gray substance distinct; vascular network of pia mater moderately injected, but without infiltration, and is easily separated and detached from the cerebral convolutions—even directly under the wound. The visceral layer of the arachnoid, however, on the right side, 3 cm. from the middle line, is glued down to its parietal layer and also adherent to the dura mater, and any traction exerted upon these adhesions causes a few drops of

[10] Reported in my first paper
[11] Reported in my previous paper.

blood to ooze out into its (arachnoid) cavity. The dura mater is also easily separated from the entire surface of the bone except at this locality of 3 cm. from the median line, where it is adherent to the osseous wall. Opposite to this attachment the bone is perforated by several small openings. Injection of water and insufflation of air into the superior longitudinal sinus demonstrates the existence of a pathological communication of the sinus with the blood pouch above. The calibre of the sinus is somewhat increased, and filled by a long, reddish, fibrinous clot. Skin over tumor thinned, and sends out from its inner fibro-muscular surface attenuated fibrinous prolongations which attach themselves circularly to the periosteum on the circumference of the bone depression, and which depression is lined by a bit of cellular periosteum, and is 5 cm. in breadth by 2½ cm. in height. The circumference of the depression is formed by a notable thickness of compact bone tissue, but its centre is very thin and spongy. The floor of the depression is also divided, by a jutting out of compact structure, into two smaller depressions: the left one extends a little beyond the middle line of forehead, is rugose, and is sprinkled with little dark openings; the other on right side is more extensive, and is riddled with minute apertures—entirely deprived of its vascular element (diploë) and corresponds to the thinnest of the cutaneous cavity, at which point both skin and bone are semi-translucent. The frontal suture plainly seen above and below the osseous lesion, but especially apparent on the altered surface. Finally, the tegumentary coverings are thinned, being deprived of all muscular and adipose tissue, and composed only of skin re-enforced by a delicate lining of fibrous tissue.

Hutin reports another case[12] (*Mém. de Médicine Mil.*, t. xiv, p. 232, 2e Série, 1854):

K., born in 1771; entered military service in 1790; received at the battle of Jèna, Oct. 14, 1806, two sabre wounds on the head—the first on superior and middle of forehead, the second on top of the head. Did not lose consciousness; fragments of bone extracted; recovery after about nine or ten months without any grave symptoms.

Forty years passed without his being troubled by any serious sickness; only suffered from severe headache. In March, 1846, while intoxicated, he fell into a bed of rocks, fracturing thigh and ribs. A pleuro-pneumonia was not tardy in developing; and in ten days thereafter he was also attacked with erysipelas, which was epidemic in the wards. Delirium; parotid abscess. March 24. Carries hand frequently towards summit of head to the right of the most prominent scar. Pressure here discloses circumscribed fluctuation and pain which did not exist previously. Diagnosing an abscess, a small incision was made into it, but only blood escaped. There was a blood-pouch containing a black, semi-coagulable liquid, poured out between the osseous vault and the pericranium, thus detaching the latter. Attempts to detect a fissure failed. The day following the dressings were soaked with blood; attempts to find fissure still futile; extended incision, which brought to view a slow, continuous oozing of venous blood from the depths of the bony wall and to inner side of the wound. This was without pulsation and uninfluenced by the respiration. A delicate blunt probe pressed upon this point readily passed on into the skull through a small opening which was covered over to about three-quarters of its extent by the soft tissues. Dry charpie and bandage arrested hæmorrhage.

Autopsy.—Scalp puffed up and much injected from erysipelatous inflammation. Cicatrix on frontal bone adherent to the remains of the frontal suture, with marked depression of the integument. At 2 cm. beyond the fronto-parietal suture and within 1½ cm. of the saggital, commence the other adhesions belonging to anterior region of the *second* cicatrix, and which are equally resisting but of limited extent. Below these is the pouch which was incised during life. This pouch (subpericranial) is about 4 cm. in extent from before backwards and 2 cm. from right to left. On removal of skull-cap all was found normal except a trivial injection of the arachnoid, one or two points in the brain, and a small quantity of serum in the ventricles. Dura easily detached over almost entire vault, except at a point corresponding to the wound of the vertex, and on each side of the closed saggital suture, where it adhered closely to the parietes, but without any visible scar. At a point corresponding to the external angle of the wound the dura mater intimately united with external tissues through a fissure in right parietal bone. The unclosed opening of the bone was about 2 mm. in width by 1 cm. long. Longitudinal sinus contained a small quantity of coagulated blood, which was partially dislodged by a stream of water—after which was visible a very pronounced projection in the sinus, passing in a line from behind forward and from right to left, and corresponding exactly to the external cicatrix. This projection was caused by a depressed thick bone-splinter depending from the internal table, and was the result, evidently, of the sabre blow—being partially detached and thus remaining fixed for many years. This spicula terminated in a spine which had perforated the sinus, and passing through into the lumen maintained patulous an opening in its walls about 4 mm. in size. Through this opening a small quantity of blood had escaped from the sinus, and which, poured out between the bone and dura, formed in this locality an oblong pouch of 3 × 2 cm. in diameter; but on the outside of the skull it had diffused itself between the bone and the periosteum, forming the collection which had been mistaken and opened for an abscess. This external effusion had passed through an opening existing in left parietal, 1½ cm. in front of and to the right of the sharp end of the fragment, and resulting from the non-occlusion of the bone divided by the sabre blow. Hence there was a direct communication between the superior longitudinal sinus and the wound in the integument, for in this fracture there were no adhesions between the meninges and the pericranium as existed through the anterior fracture. The perforation in the superior longitudinal sinus is a little to right of median line.

Stromeyer refers to two examples. The first (Ueber

[12] Reported in my previous paper.

Sinus Pericranii, *Deutsche Klinik*, Bd. 11, S. 160, April 13, 1850) is transcribed below:

A boy, 6 years of age. He sustained a fall on his head from a considerable height in his second year, resulting in a depression of the right parietal bone, which extended along the greater part of the saggital suture. The point of greatest depression was 2½ lines. The entire depressed portion was covered by a blood-pouch of 2½ inches square, which when filled was raised about 3 lines. On complete emptying the bone was felt, and the outer table was evidently poorly formed. Turgescence of the tumor is favored by each circumstance which is likely to produce congestion of the head, namely: crying, coughing, dependent position of the head, compression of jugular veins, etc. When child was quiet no fluid was discernible in the pouch.

The second case, of more recent date (*Maximen der Kriegsheilkunst*, note, S. 362, 1861), is thus briefly mentioned:

A cavalryman in 1859 was dismissed from the army on account of a blood-cyst located on the frontal bone. When distended with blood it was the size of a pigeon-egg.

The cause of the growth is not stated in this instance, but on account of the profession of the patient, together with the connection in which it is referred to, I have been led to consider it as an example of the form due to direct injury, and thus class it as such.

There are, in addition, cases belonging to the traumatic division, mentioned by Schellmann ("Ueber Verletzungen der Hirnsinus," *Geissen, Inaug. Dissert.*), and quoted by Bergmann (*Deutsche Chirurgie*, Lief. 30, S. 365, 1880).

ETIOLOGY.

The two principal varieties of this lesion recognized by M. Dupont were these: First, when the tumor communicated with the sinus of the dura mater through normal skull-openings or canals, as varicose venæ emissaria passing through their respective foramina; and second, in which this communication with the intra-cranial venous circulation was effected by means of abnormal passages. This latter class might be due to fracture of the cranium and wound of the sinus; perhaps to a non-traumatic or spontaneous perforation of these structures; and, finally, to an ulceration of the osseous tissue and a vein in the situation where such a vein pierces the skull in its course to the sinus.

M. Dufour suggests another condition, that is, in which the extra-cranial growth communicates with the sinus, either directly or indirectly through the medium of the diploic circulation. He considers this variety to be especially anticipated in persons of advanced years, in whom the diploic veins are greatly developed and frequently dilated into venous expansions or lacunæ.

The etiological classification adopted by Herman Demme is as follows: (1) Rupture of the external cranial veins, without scalp wound, resulting in cysts which may communicate in various ways with the sinus. Thus, a vein emptying into the sinus may become torn, and, forming an epicranial or aponeurotic blood-collection, after the manner of traumatic aneurism, communicate with the sinus by this means; especially in the case of the large parietal veins which penetrate the bone through their foramina located on either side of the posterior portion of the saggital suture. It may occasionally happen, also, that, under the pressure of the extravasated blood, bone resorption takes place, leading to opening of the veins of the diploë and through these to a communication with the deeper venous blood conduit of the dura. Again, the injury producing such an external blood collection may itself excite absorption and perforation in the position of a Pacchionian fossa or depression, and by this method intercommunication between the sac and the sinus system be established. (2) Varices of the external cranial (emissary) veins forming cysts which unite directly, through their relative openings, with the corresponding sinus. (3) Extra-cranial venous cysts resulting from enlargement and dilatation of the sinus itself. These are produced either by gradual absorption and breaking through of the cranial parietes, or they are pushed forward and protrude through a normal or preëxisting opening, like, for example, a fontanelle.

In closing a brief but interesting article on this character of formations, MM. Follin and Duplay declare that with the information before them they can admit only two varieties, namely: First, tumors produced by traumatic ruptures of the sinus; second, tumors resulting from atrophy and perforation of the bone in the region of the sinus or of the Pacchionian cavities. They add, however, that it may be possible, although an exception of extreme rarity, for tumors of this nature to be produced by a varicose dilatation of an emissary vein of the sinus. But, they continue, "we may be permitted to express some doubts as to the existence of this variety."

Bruns describes two forms of varices of the extra-cranial veins communicating with the dural circulation, under the description of (1) varix verus circumscriptus, and (2) varix verus cirsoideus.

Stromeyer believes that these lesions are usually produced by a rupture of an emissary vein, resulting in blood extravasation and formation of a limiting sac beneath the pericranium.

The theory of osseous atrophy—rarefying osteitis—first formulated and advocated, I believe, by Simon Duplay, is supported by Legouest and Servier, Azam, Follin and Duplay, and many others. The initial step in this process is claimed to be found in, (1) a trivial or even unnoticed traumatism, in the form of a contusion; (2) in the erosive action of the Pacchionian granulations alone; or (3) in both the first and second combined—the one being dependent upon the other. The final rupture of the rarefied osseous point may be accomplished either spontaneously, or caused by some slight shock or blow.

These general etiological outlines, as applied to the several groups separately, call for a more complete elaboration.

A. *Congenital Group.*—The points and theories to be examined relative to the etiology of the congenital cases, mentioned in the order of their seeming

prominence, are as follows: (a) Aneurismal or varicose dilatation of one or more emissaria Santorini; (b) Localized morbid processes in the structure of the sinus wall—a phlebectasia or true varix of the sinus; (c) Pathological enlargement and dilatation of the venæ diploicæ; (d) Certain hereditary vices, such as syphilis and struma; (e) Developmental arrests, as want of closure of a fontanelle, abnormal fontanelles, etc.

a. Notwithstanding the questionable opinion expressed by some authors as to the rôle played by varicose venæ emissaria in the production of this form of sanguineous tumor, the preponderance of general evidence, clinical and anatomical, is most decidedly in favor of such a morbid association, and therefore I must claim conspicuous recognition for it in this position. In clinical proof of this union the cases of Moreau, Mersemann, Acland, Michaud, Stromeyer and Verneuil bear ample testimony; and hence not only dispel any serious doubt as to the etiological office of such varicosities, but even accord to this factor a high rank in the causal list of the present collection of congenital cases. In four of the cases intelligent and carefully conducted post-mortem sections, with surgical examination in the fifth, demonstrated the real character of the lesion.

b. Diseased processes in the sinus-wall, producing hernial protrusion, or true ectasia, of the sinus itself, is upheld by the recorded examples of Demme and Foucteau, and probably that of Flint, in two of which a necropsy disclosed the extent and nature of the tissues involved. In Demme's patient the microscope was employed in verifying the post-mortem appearances, and in the other (Foucteau's) one or more of the coats of the sinus was clearly recognized by the unaided vision as entering into the composition of the sac.

Francke (Lehrbuch der Chirurgie, Bd. 11, S. 49), expresses the belief that such blood-pouches formed at the expense of the sinus wall, can occur only in monstrosities and non-viable children; but the above instances, especially that of Demme, are fair evidence of the incorrectness of his views and statement.

Furthermore, Velpeau (*Gaz. des Hôpitaux*, t. viii, 2e Série, p. 87, 1846) mentions having seen in two instances (presumably congenital), extra-cranial blood-tumors caused by a phlebectasia or hernia of the dural sinus; once near the anterior fontanelle, and a second time in the region of the occipital bosse.

c. Disease and enlargement of the diploic vessels is represented by the patient of Francke (and several others), in whom there was a blood tumor identical, apparently, with a frontal diploic vein, and associated with congenital resorption or absence of a portion of the outer table.

d. Hereditary syphilis or the rickety diathesis occasionally finds expression in the production of craniotabes, where areas or spots of softened and thinned osseous structure take place in the cranial walls, only requiring some slight internal or external pressure to convert them into veritable skull perforations. Although this condition is but seldom observed congenitally, occurring principally in syphilitic infants during the first year subsequent to birth, yet it is worthy of note that this sometimes does happen; that the inner cranial aspect is usually the primary seat of attack; and that they are generally observed occupying the posterior parts of the parietal bones—about the position where one form of this venous tumor is most frequent; and, too, in which neighborhood the Pacchionian bodies most abound.

Parallel with this observation the so-called gelatiniform degeneration of the outer table of the skull (Parrot) must be referred to, as offering points for consideration in this study.

e. The influence of certain developmental arrests suggests a field for inquiry.

These may be shown in want of closure of the normal fontanelles, thus facilitating hernial protrusion of the dural sinuses; and in abnormal fontanelles, as absence of ossification in the ossa Wormiana. Against the latter, however, in those instances where the growth is situated centrally and anteriorly on the head, may be urged their extreme infrequence in the median part of the cranial vault.

Another condition having a possible, if not probable, relationship to the etiology of the congenital class, is to be found in traumatism from head pressure during parturition.

A wound or rupture of the sinus may occur at birth, as stated by Bergmann (Deutsche Chirurgie, Lief., 30, 1880), when the overlapping of the cranial plates, in the line of their sutures, exceeds a certain limit—an occurrence that, in spite of the great changes in shape and size to which the fœtal skull is subjected in a narrow pelvis, must be considered rare. He mentions also that Litzmann (Ueber den Einfluss des engen Beckens auf die Geburt im Allgemeinen, in *Volkmann's Sammlung Klin. Vorträge*, Nr. 23, S. 191, 1871), saw the *sinus longitudinalis* twice torn during labor in cases of generally contracted and flattened pelves, where the pressure from the promontory upon the already compressed head was so great as to force the sharp serrated edge of the saggital suture through its tense coverings. Both children died shortly after birth.

Similar cases are reported by Michaelis ("Das enge Becken, noch eignen Beobachtungen herausgegeben von Litzmann, Kiel, 1865), Weber (*Beiträge z. pathol. Anat. der Neugebornen*, Lief. 1, Kiel, 1851), Olshausen (*Deutsche Klinik*, S. 365, 1864) and C. Hennig (Die Kopfblutgeschwulst, in Gerhardt's "Handbuch der Kinderkrankheiten," Bd. 11, S. 54). Again, the same injury of the *transverse sinuses* was met with by Weber (loc. cit.) and Breisky (*Prager Vierteljahrsschrift*, Bd. 63, S. 178).

Under such circumstances where there is a limited wound of the sinus, particulary if the external tissues or scalp escape implication, it is easy to appreciate how this character of tumor can be thus originated.

Finally, it should be noted that in all the clinical cases belonging to the congenital group which were positively determined by post-mortem dissection (varicose venæ emissaria, ectasia of the sinus, and dilatation of the diploic veins), the lesion had its origin, apparently, in a morbid action of the vein-wall itself, namely: a venous hypertrophy and phlebectasis.

B. *Spontaneous Group.*—The several explanations

proposed as to the origin of the spontaneous group may be summed up in the subjoined arrangement: (a) Absorptive or erosive action of the Pacchionian glands; (b) An obscure form of osseous resorption, or rarefying osteitis; (c) Varicosities of the venæ emissaria; (d) Localized morbid processes in the sinus wall, producing bone absorption, and consequent hernial protrusion of the sinus; and (e) Certain constitutional or systemic vices.

a, *b* and *c*. As previously referred to, two forms of osseous implication were recognized, that is, bone resorption dependent upon two separate and distinct causes, namely: an osseous atrophy resulting from the absorptive or erosive action of the glandulæ Pacchioni, and a rarefying osteitis due to some remote contusion. Careful investigation, however, has determined me to include the two forms under the single title of *rarefying osteitis*, since it is very probable that the osteitic changes ascribed to the action of the Pacchinonian granulations are very similar to, if not identical with, those resulting from bone contusion, especially as the history of a blow or fall is often associated with the special individual action claimed for these glandular bodies.

Furthermore, the bone resorption resulting from localized diseased processes in the structure of the sinus itself, followed by a true sinus varix or ectasia, is, doubtless, closely allied to the above forms of osteitis, and, hence, this should be comprehended, also, under the single form mentioned. Therefore in the following remarks I shall speak of one variety of osteitis only as produced by the three above named factors. The hypothesis of a rarefying osteitis with spontaneous perforation in the so-called spontaneous cases was suggested by M. Simon Duplay (vide Duplay, also Follin et Duplay), who formulated his theory upon the researches of Trolard upon the venous system of the skull and brain. This author (Recherches sur l'Anatomie du Système Veineux du Crâne et de l'Encéphale, *Archives Gén. de Méd.*, t. 1, Mars, 1870) described as situated on the lateral parts of the superior longitudinal sinus, certain areolar venous spaces or *locs sanguin*[13] corresponding to the forea glandulares, limited on one side by the osseous surface, and which, bathed by the venous blood, communicate freely with the superior longitudinal sinus and the venous canals of the diploë.

A brief résumé of the theory advocated by Duplay is as follows: The osseous lesion is the first degree or stage of the morbid formation. The bone is subjected to a blow or fall—a contusion—which produces a partial localized atrophy of the skull. This atrophy of the cranial bone is not extremely rare, occurring at all ages, and often taking place in limited areas or spots, particularly on the lateral parts of the superior longitudinal sinus over the fossæ lodging the Pacchionian glands, and in which, also, are these spaces or *locs sanguins* communicating freely with the sinus, and upon which anatomical disposition the theory is based. Thus, taking one of these points, atrophy is developed consequent upon a trivial blow and progresses steadily, reducing the bone to an exceedingly thin lamina, until spontaneous perforation is produced, or perhaps more frequently, a slight secondary contusion or shock may supply the rupturing force, and an opening into one of these venous spaces or lacunæ is effected. By this means intercommunication with the sinus is established, venous blood escapes and is effused beneath the periosteum, the tissues are floated up, and this type of blood-tumors of the cranial vault is the result. "It is thus, probably, that one would be able to explain the relation ascertained to exist in nearly all cases between the development of the tumor and the previous action of a blow or fall."

This theory of a rarefying osteitis in spontaneous cases is accepted in full by Legouest and Servier; and these authors even apply it to a more extended field than that claimed by Duplay, since they assume that the same theory is applicable to the pathogeny of analogous tumors developed in other portions of the cranium—first when occurring over the mastoid cells or the frontal sinus, a pneumocele resulting; or, second, even the diploic structure may become involved. In explanation of the latter involvement they refer to the existence in the diploë of ramifying cavities, lined with the internal venous coat (intima), communicating as freely with the dural sinus as with the extra-cranial circulation. These diploic canals constitute, especially in old persons, a continuous system which unites abruptly with four or five principal confluents passing to the cavernous sinus, the ophthalmic vein, the middle meningeal vein either directly or through the intermediary of the posterior condyloid vein. It results, therefore, that the wear of the cranial table opposite to these confluents may give rise to the development of a sanguineous tumor in communication with the intra-cranial venous circulation without the longitudinal sinus being perforated.

M. Azam believes that traumatism is always the point of departure of a rarefying osteitis; and Dufour also considers the abnormal communication to be caused by an obscure form of osteitis, followed by interstitial resorption of bone, the probable consequence of a trivial contusion.

Many authors rather question the possible rôle ascribed to the Pacchionian granulations of producing atrophy and skull perforation, among whom may be mentioned Meyer, of Hamburg (*Virchow's Archives*, Bd. xix, p. 171), whose rich experience in this field of inquiry entitles his opinion to consideration. Notwithstanding very elaborate investigation and examination of these bodies he has failed to encounter a single instance in which the forea glandulores of the calvarium extended to actual perforation.

But, on the other hand, some writers advocate this theory, giving it decided preference over any other, as shown by the opinion of Dr. Gross (System of Surgery), who asserts that "the most common cause of the abnormal communication is spontaneous, progressive absorption of the osseous tissue corresponding with the Pacchionian depressions, when, under the influence of slight traumatism, the blood escapes beneath the pericranium."

Again, as a direct example of this character of

[13] These structures were described, prior to the publication of Trolard, by Cruveilhier, Luschka, Henle and Meyer They are designated as *lacunæ lateralis sinus* by Key and Retzius, and have received also from Browning the euphonious term of *Parasinoidal* spaces.

perforation accompanied by a rupturing force or shock, the following case mentioned by Demme will be found of special interest and importance:

A robust man falling from a high building scaffold received numerous severe injuries which proved fatal in ten hours. At the autopsy there was discovered a large blood effusion extending over the posterior part the saggital suture, and which was found to be, for the most part, beneath the periosteum. After carefully washing the clot there was shown to exist, on the left side of the saggital suture, a sharp-edged opening the size of a cherry stone, through which protruded a Pacchionian granulation covered over by coagulated blood. On removal of the skull-cap a second coagulum was observed interwoven with the meshwork of the large Siekel sinus, and which (the sinus) communicated directly with the extra-cranial hæmatoma through this resorptive opening of the Pacchionian gland. My examination left no doubt in the matter that the intra-cranial hæmorrhage arose from a rupture of one of the numerous venous vessels tearing through the fibrous walls of the sinus.

In further support of these views I may refer to those obscure alterations and perforations occasionally met with in the petrous portion of the temporal bone, sometimes opening the tympanic cavity, which, according to Luschka, like the forea glandulores of the calvarium, are not improbably the result of pressure exerted by these villous-like vegetations.

Typical examples of this pathological process (rarefying osteitis) are furnished by the cases of Bruns, Hecker, Dubois, Giraldès, and Duplay, for, although not positively demonstrated to exist by post-mortem sections, they have the history of a contusion followed after a delayed period by the appearance of the tumor, together with the subjective symptoms to be anticipated under such circumstances.

The cases of Bruns, Dubois, and Duplay were regarded as being connected with the sinus either immediately or through the medium of the diploic canals. But all the symptoms seem to indicate to my mind, that Bruns's case was associated with the veins of the diploë, whilst those of Dubois, Giraldès and Duplay were, doubtless, in direct communication with the sinus.

On the other hand, the patient described by Hecker was suffering clearly from a blood-pouch first communicating with the diploë and then leading to the sinus—the result of extensive cranial loss. Hecker explains the origin and formation of this case *(varix spurius circumscriptus venæ diploicæ frontalis)* about in this wise: In consequence of a fall on the head in infancy a separation of the outer cranial table was produced with tearing of the diploic vessels, which is easily explained from the thinness of the external table and the great vascularity of the infantile skull. The blood escaped now from the diploic veins into the adjacent cellular tissue under the skin, and as the repair of the vein-rupture (perhaps on account of anatomical conditions) was not effected, the hæmorrhagic effusion continued until the cellular tissue became infiltrated and, as it were, consolidated. Now, however, this consolidation forming a barrier against further bleeding, a pouch with well-defined walls was finally formed, which, gradually but more or less completely filled with blood, emptied its contents, by means of the supra-orbital foramen, into the external cranial veins, especially the vena supraorbitalis. Osseous absorption rapidly supervened, and the tumor reached its present limits.

Hernia or ectasia of the sinus is shown in only one instance, namely, the specimen of the Jacobi. There is considerable doubt expressed, however, by several authors, whether it was of congenital or spontaneous formation, but both Bruns and Demme are decided in their opinion as to its being spontaneous. Here, also, as before suggested, it is more than probable that osseous atrophy was the active element in causing the skull opening.

c. Varicosities of the renal emissaria is exemplified in the cases of Melchiori and Andrews, in both of which necropsies disclosed the morbid changes.

Dr. Andrews gives this solution of his case: A small vein penetrated the skull (occipital emissary vein) communicating with the torcular Herophili and the scalp, and the protracted determination of blood to the brain produced enlargement and distension of the torcular,—this emissary vein also receiving a proportional increase in its calibre. Like the continued drop wearing a stone, so the oft-repeated *vis a tergo* expansion wore the bone, producing the pulsating tumor (in thus dilating the vein) and the large foramen in the skull.

In regard to spontaneously arising single or *circumscribed* dilatations of the external cranial veins, Bruns (Op. cit., p. 191) expresses the opinion that they are extraordinarily infrequent. This assertion is based upon his personal experience of two cases, with one other which he had found recorded.

e. Constitutional and systemic vices—more especially syphilis and struma—deserve notice as occupying a possible causal position. Such is manifested in those osseous changes already referred to in the congenital group; but in this category there should be included, also, any systemic condition predisposing to bone alteration or degeneration. Furthermore, it is quite possible that, in cases of rarefying osteitis, there is often some constitutional condition—a predisposition—which renders the osseous tissue peculiarly susceptible to the taking on or lighting up of this atrophic process upon the reception of a contusing force. Suggestive of this is the case of MM. Nèlaton and Richard, in which the growth was not discovered until after a severe illness of the patient.

C. Traumatic Group.—Direct traumatism is the essential element to be recognized in the etiology of this class, and the necessary conclusion deduced therefrom is that, in all traumatic cases fracture is, practically, invariably present, wounding the sinus-wall by, (i) either depressed fragments or détached spiculæ, as in any comminuted fracture; (ii) by punctured fractures, the instrument used in such fractures also penetrating the underlying sinus; (iii) by the separated sharp edges of the fractured bone, especially if the line of fracture passes across the suture to which the sinus is attached; (iv) the sinus may be torn through by a disjunction or separation of the sutures over the sinus, particularly the sagittal suture.

There is, however, another method by which this lesion may be possibly caused where fracture is not a necessary accompaniment, namely, rupture or tearing of the sinus without fracture or suture-separation, produced by certain decided changes in the form of the cranium resulting from heavy blows inflicted by some broad, flat instrument (Bergmann). I have no record of an example so produced, but the injury demands notice as standing in the category of possible factors.

From this character of injury experience shows that the transverse sinuses tear more frequently than the longitudinal, which is explicable not only on the ground of their anatomical location and connections, rendering them much more fixed and unyielding than the latter, but also in the fact that the cause resides, perhaps, in the direction of the rupturing forces, which commonly operate from above and behind. Thereby the cranium is compressed from above downwards, but expanded laterally,—an expansion which must cause great stretching of the transverse sinuses, and, as seen, a giving way, occasionally, of their walls.

On the other hand, rupture of the torcular Herophili is, of all the sinuses situated directly beneath the cranial walls, the most rarely met with. It should be noted, also, that in the analysis of the seven traumatic cases, six are characterized by the absence of external or integumentary wound, and in only one is the fracture open or compound. Hence this preponderance of subcutaneous or simple over compound fractures in association with this injury, must be mentioned as a point of special interest. It is necessary to remark, however, that investigation has shown that laceration of the sinus from cranial fracture with depressed bone-splinters, without simultaneous scalp wound, is comparatively rare. Nevertheless, in one of Stromeyer's cases it is important to refer to the fact that it was a child who had his right parietal bone depressed, from a blow the result of a fall, without cutaneous wound, furnishing another instance of injury of the sinus from a simple fracture.

(*To be concluded.*)

THE THERAPEUTIC ACTION OF THE OIL OF TURPENTINE IN THE MORE PAINFUL AFFECTIONS OF THE DIGESTIVE ORGANS OF INFANTS AND YOUNG CHILDREN.

BY BEDFORD BROWN, M.D.,

OF ALEXANDRIA, VA.,

MEMBER OF THE BOARD OF MEDICAL EXAMINERS OF THE STATE OF VIRGINIA.

In the therapeutic management of the more painful and grave affections of the alimentary canal of infants, and in those of a harmless character attended with suffering, I have for some years past been testing the virtues of the oil of turpentine as a curative agent. The use of the turpentine in this class of affections has given me much satisfaction.

The diseases of the digestive organs of infants, we are all aware, are among the most intractable and fatal which come under our observation and treatment.

If by any agency these painful and destructive diseases, which cause so much suffering to these helpless little creatures, and anxiety to relations, can be relieved or mitigated, I believe the profession is entitled to a knowledge of it. While I appreciate the fact that the therapeutic properties and application of this well-known remedy to the treatment of certain adult affections are clearly comprehended by the profession, I am equally aware that its value as a remedial agent in a large class of diseases of the mucous surface of the alimentary canal of early life, is probably not understood. Who in our profession does not witness annual visitations, during every hot season, of those inflammatory affections, often epidemically, a large proportion of which prove fatal regardless of the use of opiates, astringents, alkalies, mercury, and bismuth? In my own experience the oil of turpentine often fills a place here which no other remedy does. The therapeutic action of the turpentine on the diseased mucous membrane of the intestinal canal is of a multiform character. It is eminently soothing to the irritated and inflamed membrane, and seems to promptly arrest that rapid exfoliation of epithelium which, during the inflammatory process, is progressing at an unusual rate of rapidity. If it be really true that this agent is capable of correcting this sloughing process in intestinal inflammation, it is an important point gained in the therapeusis of this class of diseases. I think that experience will fully sustain the opinion that the agent is really reparative in its action.

The action of turpentine on the tongue is doubtless largely typical of that on the mucous surface of the digestive organs. On the *dry, cracked, red, contracted* and imperfectly nourished tongue of fevers the direct effect of the agent is to increase and regulate the circulation of the organ, to reëstablish the secretions and restore nervous function, so that in place of the former condition the organ becomes moist and pliable, assuming its natural complexion and softness. We have reason to believe that in that numerous class of diseases of the digestive tube of an inflammatory character, accompanied with fever, the the condition of the tongue actually in part represents the state of the mucous membrane of the gastro-intestinal canal, and the action of the turpentine on the one indicates to a certain extent its remedial influence on the other. The oil of turpentine in common with the other essential properties and products of wood tar, is manifestly antifermentative, antiputrefactive, deodorant, and antiseptic. In this respect, apart from its peculiar powers in healing inflammation of mucous membrane, it becomes an important agent in correcting fermentative and putrefactive action in the contents of the intestinal canal, which plays so conspicuous a part in the causation of disease in infantile life. The action of turpentine on the circulation, and indeed on the process of blood formation, is positively of a restorative character. This peculiar therapeutic property is clearly demonstrated through the remarkable influence of the remedy in restoring the circulation in purpura

simplex and purpura hæmorrhagia, and in correcting the tendency to those affections. In both of these diseases there are certainly blood stasis and blood depreciation. This fact, which has been repeatedly demonstrated in the practice of myself and others, indicates the decided influence of the agent over certain abnormal irregularities of the capillary circulation, and at once directs our attention to its adaptability in relieving engorgements and healing inflammations of the mucous membranes. Its remarkable influence also in arresting hæmorrhage of the stomach and intestines constitutes another evidence of decided action in regulating the circulation of those membranes. Whether this hæmostatic power is due to some astringency or to some peculiar influence on the vital conditions of the blood, as in the case of purpura, is difficult to decide.

The action of the drug in these diseases of the mucous membranes is not confined to its influence over the capillary circulation, but extends to the organic system of nerves and the secretions. In other words, it exerts a positive influence on the vital operations of the epithelial cell itself. When the digestive juices of the salivary gland, the stomach, pancreas and intestines are imperfectly secreted, as they too often are, all food, instead of being digested, being exposed to a temperature of 100°, is at once subjected to the laws of chemistry and, undergoing rapid fermentation and putrefaction, gives rise to various deleterious products of an acrid and gaseous nature, which produce an endless train of morbid actions in the alimentary canal of the infant.

I am fully impressed with the belief that the oil of turpentine acts as a stimulant to the salivary, stomachic, pancreatic and intestinal secretions, and in this way becomes a promoter of the digestive operations. In that condition of the system indicated by a dry, red, glazed, or brown tongue, we may rest assured that the processes of digestion and assimilation are wellnigh suspended for the want of the appropriate secretions. If the turpentine can restore the secretions of the mouth and restore the tongue to its normal state, the digestive process has already received an important impetus. There is probably no stage of human existence more subject to those painful, protracted and deleterious sequences of indigestion from defective secretions of the digestive fluids, than that of infancy.

The dry, inflamed, and aphthous mouth of the infant suffering from chronic mucous disease, when all healthy secretion is in great part suspended, calls imperatively for the use of some agent which has the power to restore these absolutely necessary factors of digestion. The almost invariable improvement which follows the use of the turpentine in the digestion of infants suffering from intestinal and gastric affections, leads to the rational conclusion that it exerts a general influence in promoting the flow of the various juices concerned in the act of digestion. Under the use of this agent the process of digestion is certainly facilitated, becoming more easy, comfortable, and more free of pain, while the abnormal products arising from indigestion are decidedly diminished, if not entirely prevented.

Mention has been made of the antifermentative and antiputre active, as well as the antiseptic properties of turpentine. The presence of these properties is clearly indicated in its decided agency in preventing and arresting the evolution of offensive intestinal gases and tympanites. Probably in our study and treatment of the intestinal diseases of infants we have not heretofore attached sufficient importance to those septic influences arising from the acts of fermentation and putrefaction in the contents of the canal. In such cases we are too prone to trust alone to the agency of opiates, alkalies, and astringents. Fermentative action and its peculiar products in the contents of the digestive organs of the ill-fed, ill-nourished infant suffering from dyspepsia is the bane of infantile existence. These products consist of the various acrid and irritating animal and vegetable acids as the lactic, butyric, and acetic.

The gases evolved from fermentation and putrefaction are the carbonic acid, carburetted and sulphuretted hydrogen, and the ammoniacal. The hourly contact of these deleterious and poisonous agents with the imperfectly developed epithelial coats of the infantile digestive organs must prove destructive of its organization and cause erosion, with its extensive morbid consequences.

Following these general remarks on the use of the oil of turpentine in the intestinal affections of infancy, it is proper to state in detail the special diseases to which it is applicable.

Gastralgia.—All infants are liable to transient attacks of painful colic, arising from temporary distension from accumulation of gas in the stomach, or from the presence of acids. But artificially fed infants more particularly are occasionally subject to a violent, protracted and intensely painful form of gastralgia in which appetite and digestion are suspended, accompanied with rapid reduction of flesh and strength, sufficiently to endanger life. Vomiting may or may not be present. There may be slight diarrhœa or constipation. The affection is invariably attended with wasting of the tissues and suspension of development, anxious and contracted facies, but no fever except in advanced stages, when gastritis or duodenitis may be developed. Pain is the great and absorbing feature of the disease, which is a never-ending source of suffering to the little patient, and a source of perplexity to friends.

The disease may appear at a very early age. It does not appear to be associated with any organic lesion. It does not partake of the intermittent character of ordinary colic. But the pain is almost constant and unceasing, without relief from opiates. The abdominal walls are usually retracted. The shrill penetrating cry of these little sufferers may often be heard, to the dismay and distress of all, pervading the entire house, day and night, except when under the influence of opium. On one occasion a feeble, emaciated little infant was brought to my office suffering with this affection, for treatment. Such were the shrill and distressing screams of the little creature, the wasted and piteous expression, that all transient callers were compelled to leave the room. The mother was robust and apparently in a vigorous

state of health, and afforded an abundant supply of nourishment.

I think in this case the child was suffering from an aggravated form of acidulous dyspepsia, with simple irritation of the gastric and duodenal mucous membranes. In two or three months this wretched little sufferer, under the turpentine treatment, combined with a few simple anodyne and alkaline remedies, was converted into a rosy, fat, merry, healthy infant. I have found the following formula a useful remedy in this class of cases:

℞ Mucilag. acac. ..... fʒiss
Sodæ bicarb. ..... xgrs
Chloroformi ..... xgtt
Ol. terebinth. ..... ʒss M
Sig.—A teaspoonful every two or three hours to an infant of six months.

Intestinal Catarrh of Infancy.—Catarrhal inflammation of the lower ileum, cæcum, and colon, is well known to be one of the most frequent and fatal diseases of infants during our hot seasons. The inveterate dyspepsia of the artificially fed infant, subsisting on cow's milk, arrow root, and other farinaceous food during dentition, united with the depressing influence of heat, constitute the most fruitful source of intestinal catarrh. The enormous amount of lactic, butyric and acetic acids generated in the stomach and intestines of those dyspeptic infants subsisting on these particular articles of diet, act as corrosives and destructive agents on the delicate epithelium. Thus a constant process is going on in those cases of exfoliation of epithelium and erosion of the submucous coats of the large intestine. The succeeding steps are engorgement, inflammation, ulceration, and softening.

Only about one-fourth of the entire number of artificially fed infants digest cow's milk perfectly. The remainder either digest it indifferently, or not at all. They, the latter, must pass through the lactic acid stage, with its attendant dyspepsia, pain, discomfort, more or less protracted intestinal catarrh, with its peculiar type of low fever, which resembles in many respects, in a striking manner, typhoid fever. The mouth and tongue are dry, red, and aphthous. The skin is dry, parched, and shrivelled. The pulse is quick and the temperature high at night. The abdomen is usually distended and tender on pressure. The intestinal discharges are muco-sanguinous and often frequent. The emaciation is always great. This, which is in ordinary termed the chronic diarrhœa of infancy, with its attendant pain, low fever, and emaciation, is a scene so often witnessed that we are prone to take a superficial view of these cases without penetrating further into the true pathological principles involved. I believe that genuine typhoid is not a more perfect example of septic fever than the form under consideration. Not only the intestinal contents, while in a state of fermentation and putrefaction, afford septic material for absorption, but the débris of broken down and sloughing tissue from softening and ulceration, furnish also materials for infecting the blood, and the production of true septicæmia. Hence in these cases we have to deal with a disease far more complicated than a simple diarrhœa. We have here an example of a local lesion and septic fever united.

The excess of lactic acid is also responsible for the presence in these cases of that inveterate form of intertrigo, which aids in impairing the general health. The acid here acts as a destructive agent on the delicate cuticle, leaving the cutis exposed and inflamed. In other words, the cuticle is destroyed by contact with the corrosive acids in identically the same manner that the epithelial coat of the intestine is from the same causes.

Infantile life is the acid stage of human existence, as old age constitutes the alkaline period. In infancy we are called upon to contend with the effects of acid development and action, while in old age the enemy that besets its course is of an alkaline character, in the form of ammonia. To repair the damages resulting from catarrhal inflammation of the intestines, restore lost epithelium, reëstablish suspended secretion, heal erosion of mucous membrane, the turpentine performs a good part.

Dysentery of Infancy.—In the primary stages of acute dysentery, when the symptoms are violent and accompanied with much fever, tenesmus and pain, the acute features may be much modified by the use of minute doses of mercury (mild chloride), ipecac, and bicarbonate of soda, followed by the tartrate of soda and potash in sufficient quantity to clear the intestinal tract effectually. This procedure relieves the intense engorgement of the mucous membrane of the large intestines promptly before disorganization begins, and diminishes inflammatory action, and improves the state of the secretions. The powers of digestion and the febrile conditions are also benefited by the proceeding. The following formula may then be resorted to with infinite benefit:

℞ Mucilag. acac. ..... fʒi
Ol. terebinth. ..... fʒss
Ol. resini. ..... fʒss
Aq. menth. pip. ..... fʒiij M
Sig.—A teaspoonful to a child of six months every 3 hours.

In connection with this treatment, anodyne enemata, composed of tinct. opium and mucilage, should be resorted to, to allay pain and procure sleep. In the advanced stages of this affection, when the fever assumes a depressed type, the general system begins to suffer seriously from emaciation and constant fever, when the tongue becomes red and dry, indicating great general prostration and a tendency to disorganization of the mucous membrane involved in the inflammation, in my experience the turpentine is among the best agents for arresting this state of affairs, and turning the tide in the direction of health and of reëstablishing a reparative process.

In some cases in the stages of disorganization I have combined the oil of turpentine with the oil of yellow sandal-wood with positive benefit. It may be found also advantageous to combine the turpentine with other agents of an anodyne, alkaline, astringent or antiseptic character.

The local anæsthetic or anodyne influence of the oil of turpentine on the gastro-intestinal mucous membrane is very considerable, which adds greatly

to its value as a remedial agent in the treatment of this class of affections.

Enteritis of Infancy.—While simple, uncomplicated enteritis is not a frequent disease of infancy, yet it occurs occasionally, and is always of serious import at this tender age. Enteritis is manifested by the presence of slight fever, moderate diarrhœa, prostration, and paroxysms of violent spasmodic, nauseating and depressing pains in the abdomen, occurring particularly one or two hours after taking nourishment. During these attacks the pulse becomes frequent and feeble, the surface and extremities cold and often livid. Relief only comes after the passage of the contents of the intestines through the diseased duodenum, jejunum and ileum. The severe paroxysms of pain do not occur usually until the contents of the stomach have escaped from the organ into the small intestines.

Enteritis is invariably accompanied with loss of appetite and impaired digestion. Nausea and vomiting in a more or less degree are usually present. Consequently the tendency to emaciation and reduction of strength are marked. In the treatment of this affection I have found the following formula more useful than any other:

℞	Mucilag. acac.	f℥i
	Aq. menth. pip.	℥ss
	Ol. terebinth	gttxii
	Tinct. belladon.	gttx
	Aq. calcis.	f℥iss
	Tinct. opii. deod.	gttx M

Sig.—A teaspoonful for an infant one year old every three or four hours.

As an adjuvant to the turpentine treatment in the painful affections of the intestines and stomach of infants, the belladonna has given me much satisfaction, and more particularly when the discharges are frequent.

Unclassified Painful Functional Affections of the Stomach and Intestines of Infants.—Infants which subsist on cow's milk and vegetable food principally, are liable to frequent attacks of pain and discomfort from irritations of the alimentary canal arising from imperfect, slow and tedious digestion, which may interfere seriously with the health and growth of the subject. These attacks may be purely of a functional character, or partake of a mild catarrhal nature, with slight fever. The intestinal discharges in these cases usually present an unhealthy appearance and are often extremely offensive, indicating a state of fermentation and putrefaction. The stimulant and carminative virtues of the turpentine, united with its antiseptic and anodyne properties, render the remedy peculiarly appropriate to this class of cases, particularly when combined with lime water and minute doses of carbolic acid.

In the class of cases treated of in this paper the oil of turpentine, as a remedial agent, is not presented as a *sine qua non*, but as a valuable agent to fill a place, and as an effective means of coöperating with other treatment for the relief of the many aggravated, painful and difficult affections of the gastro-intestinal canal of infants.

TRANSPLANTATION OF CONJUNCTIVA FROM THE RABBIT.[1]

BY EUGENE SMITH, M.D.,

PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN DETROIT COLLEGE OF MEDICINE.

It is not my intention to go into the history of transplantation of conjunctiva from rabbit to man, but simply to report a successful case, and the method followed. Allow me to premise, however, by saying that in the winter of 1873–4 I saw De Wecker, of Paris, make the operation wherein he placed the conjunctiva, after removal from the rabbit, on a microscope slide over a tumbler of hot water to keep it moist and warm before transplanting.

In 1881, at the International Medical Congress in London, which I had the honor to attend as a delegate from this Association, Dr. Dufour, of Lausanne, reported several cases, in two of which he adopted the method followed by De Wecker. The same year—1881—it was my good fortune to assist Dr. Wolfe, of Glasgow, in a successful case, in which, instead of using hot water, he placed the conjunctiva to be transplanted on the back of his hand, transporting it in that way to the patient's eye. This method was so simple in comparison that it is the one I have since adopted in two cases, only one of which was a success.

Mr. S. F., æt. 26, was burned in the right eye with molten iron in September, 1885. He consulted me several weeks after the injury, at which time the upper and lower lids were attached to the inner half of the eyeball, the cornea being covered at its inner two-thirds. There was still a great deal of inflammatory reaction, and I advised postponement of operative procedure.

On January 25, 1886, about five months after the injury, I transplanted conjunctiva after the method of Wolfe, as described by him in the *Annales d' Oculistique* for September–October, 1881, in his report of the case in which I assisted. My operation was made in the presence of the class of the Detroit College of Medicine.

It is not an easy task to remove so thin a membrane as the conjunctiva and transplant it. The moment it is dissected it rolls upon itself and it is nearly impossible to recognize the epithelial surface again. Sutures even do not prevent this tendency to roll up. For the purpose of recognizing the epithelial surface, three or four sutures are placed in the conjunctiva before it is dissected from the rabbit, the suture being long and the needles left *in situ* for use in grafting. Dr. Wolfe suggested and practices placing the conjunctiva on the back of the left hand, where it adheres and dries after being spread out. A little warm water suffices to moisten the conjunctiva and make its removal from the hand easy, when the eye is made ready for its reception.

The difficulty in holding the lid everted is overcome by passing three sutures through the border of the lid, with the ends of which the lid is controlled and kept in the required position. By this means

[1] Read in the Section on Ophthalmology, Otology and Laryngology, at the Thirty-Seventh Annual Meeting of the American Medical Association.

the annoyance of having the lid fly back just at the critical moment is avoided. From four to six sutures are all that are necessary to maintain the graft in position. In my case I tied the sutures so tight that they came out the third or fourth day without assistance. This is my habit with conjunctival sutures in general.

For the success of this case I feel indebted to Dr. Wolfe, and I have do doubt that if his precepts be followed by others more successful cases will be reported, and the operation become one of the regularly recognized operations, rather than a curiosity in ophthalmic surgery.

219 West Fort Street, Detroit, Mich.

CHLOROFORM AS AN ANÆSTHETIC.

BY T. J. HUTTON, M.D.,

OF FERGUS FALLS, MINN.

FORMERLY RESIDENT PHYSICIAN IN THE LONG ISLAND COLLEGE HOSPITAL, AND IN THE BRIGHAM HALL ASYLUM.

While interne in the Long Island College Hospital fifteen years ago I had many excellent tutors; taken all in all the faculty as a whole seemed to me the personification of wisdom and professional enthusiasm. On one point, however, there was a serious breach of harmony: one used chloroform, one ether, another a mixture of the two, with or without alcohol, etc. On entering upon private practice, I chose chloroform as my anæsthetic, and have now used it exclusively for fifteen years. Never, except in consultations, when I always defer to the preference of counsel, have I used any other anæsthetic than chloroform.

In discussing this subject there are three questions which should be answered: 1. How often have I administered chloroform to complete insensibility? 2. Under what limitations? 3. With what results?

1. I have administered chloroform to the surgical degree of anæsthesia about three thousand times; I have not kept a record of the cases, but I am sure that this rather falls short of than exceeds the truth.

In the Schuylkill, Pennsylvania, coal region, where I spent the four and a half years subsequent to leaving hospital, the Fates and their congeners the Molly Maguires held high carnival. Mining accidents, entailing all degrees of mutilation, were of almost hourly occurrence; and bullet wounds were sufficiently frequent to keep one quite in practice in that interesting department of surgery. It was not a rare occurrence to administer an anæsthetic to two or three patients daily. Although eleven years have passed since I left that interesting field of labor, I can still distinctly recall single days in which I had three serious accidents to treat, each requiring an anæsthetic. During those four and a half years I must have administered chloroform at least fifteen hundred times; in the past eleven years certainly no less.

2. Under what *limitations?* I do not administer chloroform to every one; and a rule from which I rarely deviate is to administer from a dram to an ounce of brandy, or whiskey, a few minutes in advance—according to the age of the patient. I do not administer it to persons with serious organic ailments, nor to scrawny individuals whose midgety stock of vitality is taxed to its utmost in normal respiration. Whole forenoons are not spent in stethoscopic determinations of heart lesions; a rapid survey of the *tout ensemble*—heart, pulse, tongue, general appearance and recent history, determines the fitness or unfitness for chloroform. All subjects must by no means be free from flaw, but granted the necessary soundness, it is used for both sexes, for all ages, for all manner of operations. A child a few weeks old was operated on twice under chloroform, first for cleft palate, again for hare-lip. A woman aged 66, subject to violent attacks of hystero-epilepsy, was reduced to insensibility by chloroform at least a score of times. It is always administered in the second stage of labor—to partial or complete insensibility, as the case may require—except in rapid or painless labors, or that the patient object. I remember but three who persistently objected, and all who took it once demanded it in subsequent deliveries. In a case of convulsions before labor in a primipara, bleeding, croton oil and sedatives failing to arrest them, four pounds of chloroform, administered alternately during four days and nights, stopped them. Convulsions began Monday; stopped Thursday. On the following Sunday a large healthy child was born. Mother and child doing well. I shall not wonder if this case prove unique in the quantity of chloroform administered. There are some further limitations to its use, which some may consider trifling, and perhaps unworthy of mention, but which I regard as the key to this question: *First*, I use Squibb's chloroform exclusively. Notwithstanding my familiarity with chloroform in general, I would still feel extremely chary were I compelled to use any other manufacture. *Secondly*, I will not administer it with a patient's head elevated. Dentists have offered greatest seductions in this direction. Sent for by them I go to find patient all ready, *sitting high up in chair.* "You must place patient on lounge with head low as body or I shall not administer it" is my invariable, inflexible charge. Once a little lady sat thus waiting, who, though free from heart or other organic lesion, was as impressible as mercury—as electric as the famous fish. Her pulse ran 122. "Not for a million dollars, Mrs. C., would I give you chloroform," I said, and after a glass of stiff port the extracting proceeded without anæsthetics. *Thirdly*, I will only administer it on my "rag," which is extemporized in five seconds on the spot. A piece of old sheet or shirt about $2\frac{1}{2} \times 3$ inches and four or six folds in thickness is saturated with chloroform. After the stimulant is given this is held for the first whiff or two about four inches from the nose, then advanced to three, two, or one inch, and curved towards the nose, is so held until insensibility is obtained. It need scarcely be written that the patient's clothing, particularly the neck-gear, must be abundantly loose, and that a quiet, trustful, passive condition must be enjoined on the part of the patient; "now close your eyes—breathe in long and gently." Covering the back of the rag with a piece of pasteboard saves chloroform by preventing evaporation; and it will be readily seen that our rag permits of a free admixture

of air with the chloroform inhaled. Pure air in abundance is admitted to the operating room, and it is kept pure by admitting none but those whose services are absolutely necessary. *Fourthly*, with one hand I administer the chloroform and with the other I hold the pulse. Any change is instantly noted and I act accordingly—desist or push to completion. *Fifthly*, when the thermometer is 90° or more in the shade I will not give chloroform to the degree of insensibility if the operation can possibly be postponed, for reasons to be stated under *Results*.

Sixthly, in many intelligent families where I had administered it in their presence, where the indication remained longer than I could myself remain, I entrusted the administering of chloroform to friends of patients. This has happened time and again, in all manner of convulsive troubles, the four pounds already referred to being among the number. As to the number of times I have given chloroform to the degree of partial insensibility, or that it has been administered by my patients' friends to this degree under the strict precautionary rules already cited, I cannot state the number; but it was certainly used a *very great* number of times. Why should it not have been when I have always assured doubting, intelligent people that "used as I direct, it is safe as water." A recent article would indicate that some one has administered it internally almost as freely as water—teaspoonful doses oft repeated; but of its internal effects I know very little. I have prescribed it internally only in the form of spirits of chloroform; this only a dozen or score of times in lesser convulsive affections of middle age, and always with satisfactory results.

Finally, *with what results have I used chloroform as an anæsthetic?* What success? what failures? what major or minor accidents? I have always scrupulously and religiously adhered to the precautions mentioned. I have never had a death occur directly or remotely chargeable to the effects of this anæsthetic. Never was there any alarming accident. Never did the heart fail, necessitating resuscitation. Never was an operation interrupted or its administration suspended because of systemic failure. In four instances the patient would not go under, *i. e.*, could not be rendered insensible. This is the sum of all the singular or noteworthy phenomena that I have observed. Two of these four patients were females. I saw them a year or two apart, and it was so long ago that while I remember distinctly the main circumstances, I forget the details. The other two were healthy young men—Germans, in their prime. Both were traumatics. One had his fingers torn by machinery; the other had shot off a thumb. All four rebellious patients were seen in very hot weather, when the mercury stood 90° to 100° in the shade.

I know that generalizing is always dangerous, more especially when based on meagre data; yet I dare to believe that these failures to anæsthetize were due to a peculiar condition of the blood and nervous centres induced by the extremely high temperature. This view is confirmed by the fact that by waiting until the evening hour these patients "went under" chloroform kindly and promptly.

To my mind ether could never fill the place of chloroform. The huge quantity of ether required drains finances for freightage. Its louder all-pervading odor in the operating-room is no argument in its favor. No more are the silly colloquies, the vomiting, genital irritations, and erotic séances. Moreover, time is valuable to most practitioners; all can not well afford the indefinite time required for etherization.

Finally, as to safety—the greatest of all considerations—I have, in consultations, seen two deaths occur under ether, one directly chargeable to it, the other indirectly, whereas, as already stated, *I have never witnessed any ill results from chloroform.*

Fergus Falls, Minn., Aug. 12, 1886.

OCCLUSION OF VAGINA WITH RETENTION OF MENSES.[1]

BY J. W. MEEK, M.D.,
OF CAMDEN, ARK.

My object in reporting the following case is simply to make a contribution to the history of a rare and sometimes serious affection.

I was called in November, 1885, to see a young lady, aged 15½ years, who was suffering with complete retention of urine, of thirty-six hours duration. This was my first professional acquaintance with the case. The retention was promptly relieved with a catheter. Two days afterward retention again occurred, and was again relieved. I now sought more minutely into the case, and learned that she had never menstruated but twice, first six months, and last three months prior to this time. Each menstruation was preceded by weight in loins, bearing-down pains, and partial retention of urine. After a week's duration of above symptoms a sudden *gush* of menstrual fluid gave immediate relief.

I made a thorough vaginal examination, and at the depth of about one inch from the ostium vaginæ I found a tense, elastic membrane, bulging downwards, with a sensation of fluctuation above it, completely obstructing the vagina. The nature of the case was clearly made out. A pyriform tumor could be felt over the hypogastrium. The fluid, at the previous menstruations, had evidently ruptured the dam each time, but it had been each time after menstruation very neatly repaired.

Realizing the danger that sometimes attends operations for the relief of these affections, I proceeded cautiously as follows: The large needle of an aspirator, detached from the aspirator, was thrust through the obstruction and permitted to remain there for several hours. About one pint of tarry fluid slowly passed through the needle. The needle was then withdrawn and the remainder of the fluid was permitted to flow through the orifice made by the needle. Ten days afterwards no trace of the orifice made by the needle could be seen, and an operation was commenced for the permanent relief of the condition. The patient was placed in the lithotomy position, and the labia separated with retractors. A small

[1] Read before the State Medical Society of Arkansas, April 29, 1886.

opening with a pair of scissors was cautiously made in the centre of the obstructing membrane. About one ounce of fœtid menstrual fluid was discharged. The opening made by the needle had closed before giving exit to the entire collection. I thought it best to again defer any extensive operation lest the wounding of the soft parts too severely might lead to the absorption of poison from the remaining fluid, which by this time had become septic. The fluid was washed away with warm water and patient kept in bed.

Two weeks later the operation was completed as follows: Through the opening previously made a Caros female urethral dilator was introduced and expanded until the membrane was put on the stretch. Incisions were now made with a hernia knife at several points. A small bivalve speculum was then introduced and widely expanded. The entire obstruction gave way, and the only dressing applied was lint saturated with glycerine.

Since then she has enjoyed excellent health, and I feel sure is now prepared to discharge all the duties and functions of womanhood.

As I said in the outset, operations of this kind are, though very simple, sometimes attended with serious consequences. Sims, in his "Uterine Surgery," advises against making a free incision, and Holmes says that all operations performed for the relief of these obstructions, after an accumulation of the menses has taken place, are attended with peculiar danger. To account for the phenomena sometimes following operations on these parts, he offers the following:

1. That the retained fluid, on the admission of air, is peculiarly liable to undergo decomposition and may thus lead to metritis, peritonitis, and death.

2. That when the hyperdistension of the uterus is relieved suddenly, contraction of that organ may set up and the fluid forced backwards into the Fallopian tubes may rupture the same.

Rupture of these tubes may also take place before any operation has been performed.

Post-mortem examinations have verified the above. In view of these facts, an early puncture, permitting the fluid to gradually pass away, is imperatively demanded.

As to the cause of the closure of the vagina in the case narrated, I can only say that it was clearly acquired. The membrane was of a cicatricial nature, apparently formed by union of the anterior and posterior vaginal walls. The mother informed me that the child had once suffered from seat worms (oxyuris vermicularis), and that these were known on one occasion to migrate into the vagina, giving rise to considerable leucorrhœa.

MEDICAL PROGRESS.

INTRA-VENOUS INJECTION OF SALT SOLUTIONS.—In a paper read before the Boston Society for Medical Improvement, on April 5, DR. F. B. HARRINGTON says: The effort to prevent death, which threatened as a result of the loss of blood, led at an early period in the history of medicine to transfusion. The use of the blood of animals and of blood which has not been defibrinated has been abandoned as dangerous. The blood of distinct species seem to possess toxic influences, and undefibrinated blood of the same species is dangerous, because of the occurrence of clots. Excellent results have been obtained by the use of defibrinated blood, but it is always difficult and sometimes impossible to obtain sufficient human blood for transfusion. This has led to the use of various substitutes for blood such as milk, egg albumen, peptones and the like. These although of value possess some elements of danger. The intravenous injection of salt solutions was extensively practised in the cholera epidemic of 1832–33. It was again used in later epidemics. It produced marked temporary improvement, but did not effect the final result.

Within late years it has been found by experiments on animals, that those dying from loss of blood could be resuscitated by the injection of solutions of common salt. Salt solution is an indifferent fluid, and the beneficial effect is supposed to be due to the increase in volume given to the blood remaining in the system after bleeding. In progressive anæmia life may continue, although the red corpuscles are reduced to less than one-tenth of the normal number; a reduction greater than would ever occur from hæmorrhage. When the red corpuscles remaining after severe bleeding are brought into circulation by a harmless medium the danger of death is diminished. Moreover the increased volume of the current gives the heart something to contract upon and its action becomes slower and stronger.

Ott, as the result of recent experiments, claims that the beneficial action of blood transfusion in acute anæmia may be explained only by the introduction of a certain amount of fluid into the circulation. The theory of the "transplantation" of blood by means of transfusion he believes is untenable, being disproved by experiments. Maydl, on the other hand, in his experiments on dogs was able to save more animals by defibrinated blood than by salt solution. He says we must recognize two forms of death from hæmorrhage. In one there is anæmia of the nerve centres, although blood enough to sustain life still remains in the body. In these cases stimulation, position, and auto-transfusion are usually sufficient to prevent death. In rare cases the injection of salt solution may be necessary. Death in the second form is due, he believes, to such a loss of blood that there are not enough of the normal constituents of the blood left to sustain life. In this case the transfusion of blood becomes necessary; or salt infusion may be immediately performed, to be followed in a short time by the transfusion of defibrinated blood.

Ott and Maydl thus differ in their estimation of the value of blood transfusion, yet both agree as to the value and the lack of danger in the careful use of salt solution. The difficulty of obtaining a proper quantity of defibrinated blood at short notice, and

the ease with which saline solutions can be made, certainly predispose in favor of the latter.

In 1883, Dr. Bull collected and tabulated nineteen cases in which salt solution had been used as a substitute for transfusion. This table is presented with ten new cases which I have collected.

Schwarz's solution is a saline solution made slightly alkaline by sodic hydrate.

To sum up, we have one case (3) of iodoform poisoning, three cases (14, 15, 16,) of poisoning from illuminating gas. These four cases recovered. There were four cases of collapse. Two (21, 29) from peritonitis, one (28) from septicæmia, one (23) from shock. These cases showed temporary improvement, but all died. One case (2) of incomplete removal of uterine carcinoma after temporary improvement, died; one case (5) died on the following day from amyloid degeneration of the remaining kidney, the other having been removed; one case (6) recovered from the hæmorrhage, but death followed in six days from septicæmia: One case (7) recovered, but died in three weeks from peritonitis, one case (10) died in three hours, the result of a second hæmorrhage from a gastric ulcer; one case (17) of nephrectomy after temporary improvement died in twelve hours; one case (24) recovered from the hæmorrhage and died in five days of peritonitis. Of the above-mentioned fifteen cases, four recovered. The others died from some cause other than the hæmorrhage. There remain fourteen cases of which thirteen made complete recovery. One case (25) died immediately. If correctly reported the injection of over sixty-six ounces in fifteen minutes must be looked upon as a dangerous proceeding. It is the only case favorable for the operation, in which there was no improvement.

Experience has shown us that the system will bear the loss of very large amounts of blood. Maydl found that dogs would sometimes bear the loss of two-thirds of the blood volume and recover without transfusion or intra-venous injection being performed.

To determine when intra-venous injection is demanded is a question of judgment of the patient's peril, and not a question merely of the amount of blood lost. All ordinary means should first be tried. If these fail the salt-solution may be necessary. The best form of solution is made as follows:

Sodic Chloride	6 ʒiss.
Sodic Bicarbonate	1 gr. xv.
Aqua Distillata	1000 oii +

Care should be taken that the solution be perfectly free from débris. Water that has been boiled and filtered or pure water that has been filtered will answer the purpose. The solution should be warmed and kept at a temperature between 100° and 104° F. A reservoir with a rubber tubing and a canula of small size make the best injection apparatus. No air should be allowed to enter the current. The solution should enter the circulation at a low pressure and its effect on the heart should be carefully watched. Gravity pressure is safer than a syringe. An elevation of one and one-half to three feet is sufficient. The amount used must depend upon the effect upon the circulation, but may be from one to four pints. If a vein can be found in the arm it may be used. This can usually be accomplished if a ligature is placed about the arm above the elbow and the blood in the forearm is pushed toward the elbow, by the hand or by bandaging. If the vein cannot be found, the artery may be used. The salt-solution should not be allowed to enter the circulation too rapidly, lest the heart be overpowered. The simplicity of the operation, its great efficacy in cases of simple acute anæmia and the lack of danger in its careful use makes it the duty of every practitioner to be prepared to make trial of this means of saving life when the necessity arises.—*Boston Medical and Surgical Journal*, May 27, 1886.

Ergot in the Third Stage of Labor.—Dr. V. M. Reichard, of Maryland, says in regard to "Ergot in the third Stage of Labor, and its Influence in Preventing Septicæmia:" It is an agent of the greatest utility in the third stage, and especially in the post-placental period. Those authors who are most chary about giving ergot advise its use when the head is about passing the vulva. This, however, may cause trouble. With an adherent placenta—and there are some men who find these cases are not extremely rare—the drug may cause such severe contraction as to interfere seriously with the operator or indeed imprison the placenta within the uterine cavity. The safest rule by far is not to give ergot until the placenta is in the vagina or escaping from the mouth of the womb. Given at this time and in full and sustained doses, too much cannot be said in its favor. It lessens or prevents after pains; it hastens involution to a marked degree; and it reduces to a minimum the dangers of septic absorption. In this latter direction I conceive lies its greatest usefulness. The situations most favorable for the absorption of septic organisms are the denuded placental site and the occluding thrombi in the mouths of the uterine sinuses. By securing firm contraction or hypercontraction both these dangers are met. The uterine cavity being emptied thoroughly and kept almost entirely in a state of tonic contraction, the discharges are carried out at once, the placental site is reduced to the smallest size, and the thrombi have the serum forced out, thus diminishing their value as propagating media for septic organisms.

The facts bear out these assertions. I have found that women who are thus treated with ergot do better than those who are not. The temperature scarcely rises above the normal, and they are in better condition at the end of the lying-in period. In a recent case in which the placenta was remarkably adherent, all judicious efforts failed to remove the entire placenta. The injury to the uterine surface by prolonging further the efforts at removal was judged to be greater than the danger of leaving behind a piece of placenta. The woman was given a drachm of ergot every four hours. In twenty-four hours the lochia were very offensive, and on the third day a goodly-sized piece of placenta was discharged in a putrid state. At no time was the woman's condition at all serious. I do not wish to be understood as saying that every effort should not be made to remove the entire placenta. But what I do say is that ergot will so seal

the uterine absorbing surfaces that a putrid piece of placenta may be retained and no bad results follow. Whether it be only a coincidence or the effect of a cause, opinions may differ; but I am sure that since giving ergot to every woman immediately after the expulsion of the placenta my cases do a great deal better than before I commenced to give it.

To sum up: Ergot should not be given until the placenta is under entire control; then should be given several doses in quick succession until the womb is well contracted and low down; and after this a drachm every four hours. The rapidly-repeated doses may cause vomiting, but I have never seen any bad results follow this. On the other hand, the womb seems to contract more forcibly.—*Philadelphia Medical Times*, September 4, 1886.

TREPHINING IN HÆMORRHAGE FROM THE MIDDLE MENINGEAL ARTERY.—In the past three years, Krönlein has opened the cranial cavity for hæmorrhage from the middle meningeal artery and resulting hæmatoma in four cases where neither wound of the skin, nor fracture of the skull existed.

The diagnosis was correctly made in every case. In each instance there was found a marked supra-dural extravasation in the region of the arteria meningea media. Two patients recovered. Cerebral hæmatoma may be (a) diffuse, or (b) circumscribed. Of the latter (b), Krönlein makes the following classification according to the seat of hæmorrhage:

First. Hæmatoma media, or tempero-parietale, of the middle cerebral fossa (a region supplied by the trunk and anterior or posterior division of the arteria meningia media) due to hæmorrhage from the anterior branch of the anterior division.

Second. Hæmatoma posterius, or parieto-occipitale —parietal eminence—due to hæmorrhage from rupture of the posterior branch.

Third. Hæmatoma anterius, or fronto-parietale—frontal eminence.

The tempero-parietal region is the most common seat of injury (a) from the vulnerability of the region, (b) from the size and number of vessels, it being the seat of the trunk and the main branches. All hæmatoma are accessible at the anterior inferior angle of the parietal bone, with the exception of the circumscribed ones of the parieto-occipital region. If the hæmatoma is not found here, the parieto-occipital region must be explored, and the point for trephining is under the parietal eminence. Krönlein's indications for surgical interference are symptoms of cerebral compression, and his rule for locating the points for operation are as follows:

1. A line called the horizontal line of the skull, namely, one passing from the infra-orbital border to the external auditory meatus.

2. A horizontal line parallel with the above, and projected backward from the supra-orbital ridge. Both points of operation are in this line.

(a). The anterior; three to four cm. posterior to the zygomatic (ext. angular) process of the frontal bone.

(b). The posterior; at the point of intersection of the above horizontal lines, and one projected vertically, from a point just posterior to the mastoid process.

Krönlein claims that a double operation is indicated not only in cases where a single perforation fails to find the seat of extravasation, but also in cases of diffiuse hæmatoma, since the clot can be more completely removed, and also a better opportunity afforded for drainage, should such be necessary.—*Boston Medical and Surgical Journal*, Aug. 26, 1886.

BROMIDE OF ARSENIC IN DIABETES.—MOOCK (*France Méd.*, Feb. 25, 1886); reports the case of a woman æt. 54 years, who had probably had diabetes about four years, and who also had phthisis in the stage of cavity. She was much troubled with valvæ pruritus. Small doses of bromide of arsenic were given, together with iodoform, and in two weeks the pruritus had entirely disappeared and the chest symptoms were much ameliorated. At first she was given gluten-bread, but afterward was allowed ordinary bread toasted. The improvement continued for two months, at the end of which the sugar passed had been reduced to not much more than one-twentieth of the original quantity, and the chest symptoms were quite checked, although a cavity, of course, remained. DR. N. S. DAVIS, JR. (THE JOURNAL, May 8, 1886) has reported excellent results with bromide of arsenic in conjunction with a strict anti-diabetic diet.—*New York Medical Journal*, September 18, 1886.

INTRAPERITONEAL INJECTIONS IN ACUTE HÆMORRHAGE.—RÜTGERS records the case of a woman who, as a result of post-partum hæmorrhage, was in a state of profound collapse, and whose veins, after ligature, did not swell, so that no indication for the site of an intravenous injection was obtainable.

A solution of sodium chloride 90 grains, sodium hydrate 5 grains, and distilled water 34 fluid-ounces, was accordingly introduced into the abdominal cavity by means of a trocar. After three days, during which abdominal pain and subnormal temperature obtained, the general condition was excellent.

It is evident, from this experience, that the absence of swelling in veins after ligature is no sure sign of actual death, and it is suggested that the method described may replace that of hypodermatic injection of water in Asiatic cholera.—*Centralb. f. d. med. Wiss.*, Aug. 7, 1886.—*Medical News*, Sept. 18, 1886.

VIBURNUM PRUNIFOLIUM AS A PREVENTIVE OF ABORTION.—CHÉRON (*Gaz. de Gynécologie*, July, 1886) recommends the following:

Tincture of viburnum prunifolium		40 minims.
Elixir of garus,[1]	each	1 ounce.
Simple syrup,	each	1 ounce.
Distilled water		2 ounces.

A tablespoonful every hour, or half hour, as required.—*N. Y. Med. Jour.*, Aug. 7, 1886.

ARTIFICIAL COCAINE.—MERCK, of Darmstadt, has succeeded in preparing an artificial cocaine which possesses all the properties of the natural product. Benzoic ecgonine is treated with methyl iodide and a certain quantity of methyl-alcohol at 100° C. Benzoic methyl-ecgonine is thus obtained, and this substance is cocaine.—*Phila. Med. Times*, Sept. 4, 1886.

[1] Consisting of the compound tincture of saffron and an aromatic. The former contains aloes, saffron, cinnamon, cloves, and nutmeg.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.

PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

Subscriptions may begin at any time. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 65 RANDOLPH STREET,
CHICAGO, ILLINOIS.

SATURDAY, SEPTEMBER 25, 1886.

BRITISH MEDICAL ASSOCIATION—ANNUAL MEETING IN BRIGHTON.

The recent annual meeting of the British Medical Association at Brighton, Eng., was regarded by those present as one of the largest and most interesting that had been held in many years. Brighton is not only one of the most attractive cities at all times, but is especially so in the summer on account of its admirable location fronting the open sea. It is fortunate, too, in having possession of the Royal Pavilion and its appendages, which were built and occupied as the royal residence by King George IV; in the richly decorated rooms of which all the meetings of the Association and its Sections were accommodated. The general arrangements or programme for the strictly scientific and professional work differed but little from that of the American Medical Association. From two to three hours of each day were occupied in the general meetings of the Association, and three hours of each of the second, third, and fourth days in the several Sections. A part of the first day was occupied by separate meetings of the Council for business purposes, leaving no time for the Sections to meet until the afternoon of the second day. A general programme was given to each member at the registration table, and the subsequent details of work for each day were posted on the bulletin boards in the morning. The general meetings on the first, second and third days were very well attended, but those of the fourth day attracted comparatively few. Even the interesting and important address on Public Medicine by Dr. Mapother, which was given at 10 o'clock A.M., was listened to by not more than 100 members; and the closing proceedings at 4 P.M. commanded the attention of only about 150. The Sections of Medicine and Surgery attracted the largest attendance; those of Public Medicine and Obstetrics next; while the remaining Sections of Psychology, Pathology, Therapeutics, Ophthalmology and Otology were attended by only small audiences. The President of each Section delivered an address, not to the general body, but to the members of the Section over whom he presided, which evidently served to increase the number in attendance and to promote the interests of the Sections. The number of papers actually read in the several Sections was not large, but as a rule, bore marks of having been carefully prepared by their authors, and in some instances elicited discussions of much interest, while others were passed without comment. In all the particulars to which we have thus far alluded, the doings of the British Association both in the general sessions and in the Sections bore a close parallel to those of our own National Organization. In another respect the parallel also holds good, and that is, in the difficulty of hearing with any satisfaction either the reading of papers or the discussions regarding them, unless in immediate proximity to the reader or speaker. Very few of those who took an active part either in the general sessions or in the Sections were heard satisfactorily over the half of even a moderate-sized audience. And it is this, more than all other things together, that renders the audiences, especially in the Section rooms, uneasy on account of the frequent coming in and going out of individual members. The fault is seldom in the acoustic qualities of the room as is too frequently alleged, but in the reader or speaker himself. The truth is, there are comparatively few members of the medical profession who stand erect with free expansion of the chest, and read or speak with that clearnesss of voice and distinctness of enunciation which is necessary to make themselves heard with pleasure in every part of a fair-sized audience room.

The business management of the British Medical Association is entirely in the hands of the Council, composed at present of about seventy members, a part of whom are elected by the several Branches. This Council selects the places for annual meetings, nominates the officers, arranges the programmes, considers and reports on all matters of business or medical polity, and in submitting reports to the general body, selects the members to move their adoption and others to second the motion, and when these have made their speeches in advocacy of the measure, the time for anything in opposition is generally limited and placed at a disadvantage. Our readers

will remember that prior to the meeting of the American Medical Association in St. Louis last May, considerable discussion was carried on in the pages of this journal on the feasibility of adopting changes designed to approximate the business organization of that body more closely to that of the British Association; and at the St. Louis meeting a committee was appointed to consider and report on the subject at the next annual meeting. One of the prominent objects we had in view while attending the recent meeting of the British Medical Association at Brighton was to study its practical working, with especial reference to examples for imitation in improving our own National organization, and we shall soon devote a few editorial pages to that subject. We will only add here, that the social arrangements and opportunities at Brighton were brilliant in quality and prodigal in amount. At the opening on the first day the members of the Council were tendered an elegant reception and sumptuous lunch by the Mayor of Brighton; on the second evening the whole Association was tendered a brilliant *soirée* by the profession and corporation of Sussex, which includes Brighton; on the evening of the third day was the Annual Banquet in the Rotunda, attended by three hundred and sixty members and a large number of invited guests; in the early part of Wednesday evening the Association of Irish graduates and schools gave an elegant entertainment; and on Friday morning the British Temperance League gave to members of the Association a temperance breakfast, which was not less elegant and interesting than any of the entertainments that had preceded it. In addition to all the foregoing, invitations to small companies for lunches and dinners at the residences of members of the profession in Brighton, were numerous and cordial. The number of visitors from other countries in attendance was large, especially from this country and the British Provinces on our northern border, and all were treated with marked courtesy and kindness. On the afternoon of the third day, in a very full general meeting, the American visitors were kindly invited to present the subject of the International Medical Congress for 1887, which invitation was accepted. The explanations made, ending with a renewed cordial invitation to attend the Congress, were received with approval, and resolutions of thanks and acceptance were passed with genuine enthusiasm.

THE ANTAGONISM OF MALARIA AND SCIENCE.

Certain portions of the very interesting Address of DR. BILLINGS before the British Medical Association seem to have produced a chill of astonishment, followed by a stage of true febrile excitement and other unpleasant phenomena attendant upon malarial attacks, in some of our malarially situated contemporaries. The *causa rigoris* was Dr. Billing's showing that in some parts of the South, and especially in the Mississippi Valley, malaria is very much more prevalent than in the Northern and North-eastern portions of the country, and then asserting that "malaria and science are antagonistic." "It was within the limits of this malarial shadow that the foundation of modern gynæcology was laid by Marion Sims, of abdominal surgery by McDowell, Battey and Gross, of an important part of the physiology of the nervous system by Campbell. Nevertheless, the rule holds good that malaria and science are antagonistic; the exceptions prove the rule."

Before discussing the weighty question as to this antagonism, it may be well to say that exceptions do not *prove* rules; an exception shows that a rule exists, but it cannot show the truth of a rule. For if one exception can prove the truth of a rule, two prove it more fully; and we are reduced to the absurdity of saying that the more exceptions there are to a rule the more hard and fast, and the more universal the rule. Such logic as this gets us into deep water at once.

The Address is illustrated by four maps showing the distribution of deaths from malaria, cancer, consumption and pneumonia, as compared with deaths from known causes in the United States (Census of 1880). Remembering that "malaria and science are antagonistic," the malarial map shows very clearly that the scientific strata in this country were very irregularly distributed six years ago, though the next census may show that recent "terrestrial upheavals" have shifted them somewhat. For example, according to the map the greater part of the science of the country in 1880 was not only west of the Alleghanies, but west of the Mississippi River. The only two States or Territories which were wholly scientific at that time are Utah and Nevada. There is a small scientific strip along the coast of California, sharply bounded on the East by the Central Pacific Railway, and higher up we find a surprisingly large piece occupying the western third of Washington Territory. Then there is an equally rich vein of science running down through Nebraska, Colorado and New Mexico —much better than can be found anywhere on the Atlantic coast. The map shows that very large portions of Dakota, Minnesota and Wisconsin are very much more scientific than the eastern half of Massachusetts, New York and Pennsylvania. Down among the mountains of east Tennessee, too, are large de-

posits of science, as also along the Western coast of Lake Michigan. In short, the map shows most conclusively that there is more science in Utah, New Mexico and Nevada than in all the Eastern portion of the United States north of the Potomac River. Arizona, Idaho, Montana and the Southern part of Illinois are shown to have as much science to the acre as littoral Massachusetts, Connecticut, New York or Pennsylvania. And as malaria seems to be on the increase in the North-eastern portion of the country there is some ground to fear that it will not be long before all the surviving science will flee in terror in the direction of the setting sun, leaving that portion of the country enveloped in a dense fog of malarial ignorance.

The first two maps show, what is not mentioned in the Address, that malaria is antagonistic to cancer; and from this we may draw a very logical conclusion: Malaria and science are antagonistic; malaria and cancer are antagonistic; *ergo*, cancer and science are synergistic, or co-adjuvant; and the more one thinks of it the more will he be convinced that this is what the talented reader of the Address intended to say. For in this case the cancer map would show that as there is more cancer so there must be more science east of the Alleghenies; and our esteemed confrères of the Mississippi Valley would probably have not been so much offended; especially as the Northern part of Louisiana has a very aristocratic death-rate from cancer. The map shows that in some parts of the country the malarial microbe devours the cancer cell with avidity—a true "Battle of Cells and Bacteria" (see *Virchow's Archiv*, Bd. CI, Hft. 1; THE JOURNAL, August 22, 1885). Reasoning on these lines, and looking at the Utah portion of the malarial map, one might be inclined to formulate some such law as "Malaria and polygamy are antagonistic;" for there is a great deal of polygamy in Utah, but very little malaria; and while there is much malaria in the Mississippi Valley there is no polygamy; and this is further borne out by the fact that while the Sultan of Turkey has many wives he is not subject to malaria. Now then, if malaria and science are antagonistic, malaria and polygamy antagonistic, malaria and cancer antagonistic, and cancer and science synergistic, does it not follow that polygamy and science are synergistic? Have we not here a key to the great problem of what to do with the Mormons? Let the Government send half a dozen bacterio-therapists to Utah, each armed with cultivations of the bacillus malariæ.

But are malaria and science antagonistic? It is difficult to say how the question is to be settled. From those who have not been "incidents of a miasmatic cataclysm" there may be a possible affirmative answer to the question; but can we think that they who have had chills and are liable to have others will send any other reply than a unanimous negative? Furthermore, the announcement that the malarial microbes may attack and devour the germs of science is a serious thing for the already scientific man; a matter of tremendous import. What geologist from the unmalarial districts of the North will venture to go and study the effects of the recent earthquake with the possibility staring him in the face of a horde of malarial bacilli attacking his geological germs, like a devastating army of Metschnikoff's phagocytes. And would not his local geological society be justified in expelling him from its ranks, or quarantining him on his return until a quinine war had been waged on the *bacilli malariæ* which might be concealed about his person? This is a serious matter. Imagine the consequence of a member of the American Association for the Advancement of Science actually having a chill at one of the meetings! Or could there be a more dire disaster than such an occurrence in the Concord School of Philosophy? Nevertheless, we find scientific men going boldly to work to hunt up that malarial microbe, and some of our German and Italian confrères claim to have captured it. Can we believe they know their danger, or is it an example of the utter disregard of consequences which sometimes takes possession of scientific men? Men will often fearlessly run risks which may involve loss of life; but it is seldom that they will take the chances of being de-scienced.

Yet, if science and malaria are antagonistic there is still a gleam of hope—one way out of the difficulty; and but one. We regard it as fortunate in medicine when we find something antagonistic to something else which is dangerous; and if malaria be antagonistic to cancer, polygamy and science, the converse must be true. Here then we have a prophylactic indication; instead of planting eucalyptus trees, which must take some years to grow, instead of draining swampy lands, which requires a vast amount of money, let us transplant full-grown cancer patients, polygamists, and scientists to our malarial districts, in such numbers that the malarial microbes must inevitably be overcome and driven from the country. Let a great cry go up from the Mississippi Valley and other malarial districts for an influx of cancer patients from the North and North-east, and scientists from Idaho, Utah and Nevada. And if the remedies prove potent against the evil then we will see that science and malaria are really antagonistic; we will see how

great results may spring from incidental suggestions made in a foreign country; and we will also see

"How *Index*-learning turns no student pale,
Yet holds the eel of science by the tail."

DEATH OF DR. JAMES WAKLEY.

Medical men will sincerely regret the death of the editor of the *London Lancet*, which occurred on Monday, August 30, after a long and painful illness, from epithelioma of the mouth. For twenty-five years he has been known over the civilized world as the great editor of a great medical journal, as the upholder of medical right and the powerful foe of professional wrong-doing—and in all that time, with all his work, and latterly with all his sufferings, he was the friend of poor humanity. He was essentially a journalist, and the type of the great professional editor. The mantle of a great editor (his father) fell upon him, and he showed that he could wear it. Under his management *The Lancet* has grown until now it stands with only one equal. He was, if any man ever was, the friend of the young physician; quick to mark indications of worth, and to open a way for its development. The English public have reason to mourn his death, for he was ever the watchful guardian of public health, and especially of the health of the poor.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.—A letter in the *New York Medical Journal* from DR. F. PEYRE PORCHER, of Charleston, S. C., states that the Medical College building has been so nearly destroyed by the recent earthquake, that an entire new roof will be required and at least the partial rebuilding of the walls, before it can be occupied again for teaching purposes. As the medical men of Charleston have suffered in common with other citizens, severe injuries to their own property, they need prompt assistance from their professional brethren, more especially to aid in restoring the Medical College to its former usefulness. We trust there are some members of the profession in this City who would cheerfully contribute something for this purpose. If so, we will unite with them in sending a remittance directly to the care of Dr. Porcher. "It is more blessed to give than to receive."

THE ILLINOIS COLLEGE OF PHARMACY.—This College will begin its courses of instruction on the first day of October. The instruction rooms, corner Lake and Dearborn streets, are furnished in the most substantial and complete manner. Four laboratories have been provided, for analytical, synthetical, microscopical and pharmaceutical work. The capacity of these laboratories enables 150 students to receive instruction simultaneously, and there are individual accommodations for four such classes, or 600 students. The special laboratory for instruction in dispensing work is an important department introduced by this College.

SOCIETY PROCEEDINGS.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

Stated Meeting, June 8, 1886.

DR. F. I. KNIGHT, CHAIRMAN.

ALBERT N. BLODGETT, M.D., SECRETARY.

The records of the meeting (on April 14, see THE JOURNAL, May 29, p, 600,) at which the subject of Military Drill was first discussed, were read and approved.

PROF. D. A. SARGENT read a paper on

THE EFFECTS OF MILITARY DRILL ON BOYS.

He called attention to the fact that the primary object of establishing the drill in our schools and colleges was a professional one—to give instruction in military tactics to young men, in order that they might be of service to the country or community in case of an emergency. The war not only gave an incentive to the practice of military drill, but it also furnished a great stimulus to all forms of physical exercise, and especially to athletic contests and games. Within the past few years, physical training has received a new impetus. A large number of school, college, and city gymnasia have been built, and athletic games have obtained a strong hold upon public attention. As the occasion which gave rise to a call to arms grows more remote, the real object of the drill loses its significance, and the advocates for its maintenance in the schools now claim for it superior advantages as a physical exercise. In the City of Boston, the committees to whom the subject of military drill in schools has been referred have placed considerable stress upon this point. In 1883 the committee reported as follows: "Your committee believe that the drill, as now carried on, proves to be not only the *best* for physical exercise for these schools, but that, at the same time, it inculcates a more manly spirit in the boys, invigorates their intellects, and makes them more graceful and gentlemanly in their bearing." In the report for 1874 there is a similar statement. In 1875 the committee state: "We trust that the drills will be kept up, believing that committees having them in charge will see that no form of gymnastics could be substituted from which the boys would derive such benefit." In 1880 the committee say: "The establishment of the military

drill is one of the few provisions made by the School Board for the physical training of the pupils under its charge, and no one who has observed the soldierly bearing of the members of our school battalions can have any doubt of its value as a means of securing a full and symmetrical development of the physique."

Notwithstanding the fact that half of the members of these committees were physicians, I shall beg to differ with them absolutely as to their conclusions concerning the physical effect of the military drill upon boys. In order that we may approach the discussion of this subject more intelligently, let us inquire briefly into the physiology of exercise, and consider some of the facts which observation and experience have determined. Exercise in its simplest sense may be defined as muscular movement produced by muscular contraction. According to the physiologists, "the property of contractility is inherent in the muscular substance, but in normal life the manifestation of this property is immediately determined through the influence of the nervous system. . . .

"A nervous impulse originating at the brain or spinal column travels along the nerves to their terminal expansions in the muscular fibres; on its arrival at the muscular fibre, the nervous impulse is converted into a muscle-impulse. . . . Between the reception of the nervous impulse and the initiation of the visible contractile movement an interval elapses, known as the 'latent period,' which (according to Helmholtz) is probably occupied by molecular changes in the fibre preparatory to its alteration in form. At the close of the latent period the muscle-impulse is succeeded by a wave of contraction. . . . The contraction of the individual fibres produces changes in form of the entire muscle, shortening the distance between its two extremities by increasing its thickness, and slightly reducing its bulk.

"In the voluntary muscles (according to Weber), each contraction is compound in character, being composed of a series of rapid contractions, due to an equally rapid succession of nerve-impulses."

During muscular contractions certain chemical changes take place in the muscle substance, although the exact nature of the metamorphosis is not known. It is known, however, that the blood escaping from muscles in action is much darker than the venous blood of muscles in repose, and that it contains a much greater proportion of carbonic acid. It is also known that a greater amount of oxygen is absorbed by the muscle during the period of contraction, and Gaskells's experiments have demonstrated that the flow of blood through muscle is increased at the time of its shortening. Thus we see that the simplest muscular movements involve a molecular change at the nerve-centre in which the movement originates, in the nerve-fibre that transmits the impulse in the muscle-fibres that contract, and in the blood-vessels that dilate in response to the stimulation. The experimental researches in the physiological laboratory on a single muscle have given us an epitome of what should take place throughout the system at large, in order to realize the best results from exercise.

The consecutive action and fiarmonious relation of the nervous, muscular, and vascular systems must accompany every effort to improve the physique and render the individual energetic, healthy and strong. How to attain this three-fold result is the problem that the instructor of physical training has before him.

To select at once a system of exercise that will do no harm to anyone, and yet be beneficial to all, is a difficult task, yet we shall come nearer doing the greatest good to the greatest number if we follow what may be termed the physiological method. As near as I have been able to ascertain them, the essential requisites of a good exercise may be summed up in the following suggestions:

1. The person should be sufficiently interested in the exercise to give it his attention in order to secure the necessary volitional power to start the movement. Any exercise executed in a lifeless way is of little benefit to nerve or muscle in a healthy condition.

2. There should be a weight or resistance to overcome in order to bring out the working force of the muscle, the theory being that the muscles were not created merely to move the parts to which they are attached, but to do service and help man bear his burdens. In using a weight, the muscle gradually acquires the force with which it tries to contract.

3. The exercise must be performed with sufficient vigor and rapidity to engage the energetic contraction of the muscles employed. When this is done, old tissue is broken down, and its place is supplied with new material in increased quantity, thus augmenting the size and strength of the muscles. The rapidity of the movement puts a limit to the weight used, and the alternate contraction and relaxation of the muscles assists the circulation of the blood in the parts employed.

4. As many muscles as possible must be brought into action in order to secure a full-orbed and harmonious development of the whole body. One-sided development is usually attained by robbing some other part of its just share of the body's nutriment. It is apt to be accompanied by a functional disturbance of one or more of the vital organs, by inducing malformations of the thorax, or it is likely to lead to the straining of parts that are weak, by gauging their strength by parts that are strong.

5. A sufficient number of muscles should be called into action at one time to stimulate the action of the heart and lungs, and increase the circulation and respiration. This is one of the most important considerations to bear in mind in regard to exercise. The more muscles a person can use at one time, and the more rapid and extensive the movement, the greater the muscular consumption of oxygen and elimination of carbonic acid. In order to sustain this activity in the muscles, a greater amount of oxygen must be taken in, and a greater amount of carbon-di-oxide must be given off from the system. This is accomplished through the respiration. "If a man walks one mile an hour, he breathes twice as much air as when he lies down; if he walks four miles an hour, he breathes four times as much, if six miles an hour, seven times as much." He takes out of this inspired air an increased ratio of oxygen, and eliminates nearly the same proportion of carbonic di-oxide during expira-

tion. To keep up this increased respiratory activity and aid the heart in removing the waste material and hastening forward the new, the limbs and walls of the chest must be absolutely free from any ligatures or constructions. The slightest interference with the action of the respiratory muscles at this time embarasses the functions of the lungs and heart. The chief advantage of exercises that give employment to many muscles at one time is that by increas ing the respiration and quickening the circulation, they improve the health and strength of all parts of the body.

6. As a "latent period" precedes the contraction of a muscle, so a momentary period of rest should, as far as possible, precede movement in exercise. This is best secured where there is an alternation in the movements, as in walking, running, rowing, etc. All tetanized movements, such as holding weights, standing in a constricted postion, etc., tend to impair the tone of the muscles by interfering with the nutrition of both muscles and nerves.

7. Observation. The exercises of the young should be of such a composite nature as to bring about the co-operation and co-ordination of the muscles. This involves principally the training of the central nerve system. All gymnastic sports and athletic games that require skill, dexterity, coolness, courage and presence of mind, are included in this list, and are exceedingly valuable to any system of physical training, as adjuncts in the development of character.

My principal objection to military drill as a physical exercise, is that it does not to any extent meet the physiological demands of the body as set forth in the seven observations just referred to. In other words, it is not of sufficient interest as a means of physical development to arouse any moral earnestness and enthusiasm on the part of the boys. The exercise of the manual is not performed with sufficient force and rapidity to engage the energetic contraction of the muscles employed. It is essentially a one-sided exercise, bringing into excessive action the elevators of the right scapula, the deltoid, biceps, flexors of the forearm, wrist and fingers of the right side, while the other muscles, excepting the legs on parade days, do not get sufficient employment to keep them in good condition. It does not increase the respiration and quicken the circulation to a sufficient extent to secure the constitutional benefits that should accrue from exercise.

During the drill the clothing is buttoned close around the chest, and natural respiration is hindered. The muscles are not alternately contracted and relaxed, but are tetanized or kept in a state of prolonged tension. This, as we have seen, not only impairs the tone of the muscles used, but it also puts an additional strain upon the brain and nervous system at a time when both should be as much relieved as possible. Finally, the mere exercise of the manual of arms does not give sufficient breadth and scope of movement to secure the co-operation of the muscles, and as a training for the central nerve system, it is of little or no value.

Coolness, courage, presence of mind, and that rapid and responsible exercise of judgment in emergencies, so valuable to the man of business, as well as to the soldier, are not developed by the drill itself, though I will admit that other moral attributes, such as obedience, patience, fortitude, and forbearance, may be brought to a high degree of perfection. The community at large, have long entertained the idea that there was something about military drill that made young men erect, or, as the committee have been pleased to term it, giving them a graceful and manly bearing.

I dislike to take from the drill one of the strongest attributes that has commended it to parents and teachers, but unless I have been misled in my observations, there is nothing in the drill itself that tends to make one erect or graceful. On the other hand, I am prepared to maintain that it tends to make him stiff and angular in his movements, as well as to droop and round his shoulders.

As no two minds are alike, so no two bodies are alike. But growing out of this great diversity of shapes and sizes, there is a figure around which nature tends to range those of a certain age, height, or weight (according as either is taken for the standard). This is termed the mean or typical boy for a given age, height, etc. Any marked divergence from this standard is readily detected by a casual observer. My attention was long since called to what I think may be termed the prevailing weakness or defects in the school boy's and student's physique. There are a drooping of the head, flatness of the chest, narrowness of the waist, and an exaggeration of the normal or physiological curves of the spine, and I might add to this number, though it is not quite so common in boys as in girls, lateral curvature of the spine. These defects, I say, are so apparent, that it does not take a practised eye to detect them. They attract the attention at once of any one who cares to examine the figures.

The drooping of the head and flatness of the chest may be accounted for by the increased prevalence of myopia, tightness of clothing, and the pressure of the school desk or table on the lower ribs and sternum. The hollowness in the back is partly due to the fact that it is a compensating curve, but more probably attributable to the weakness of the trapezii, rhombodii, serati and latissimus dorsi muscles. The smallness of the waist is undoubtedly largely due to inheritance, and to the fact that the youth of the present day make very little use of the muscles of the waist and loins. Lateral curvature of the spine may be caused in many ways; by defective seats, bad positions in writing and drawing, standing for a long time on one leg, carrying weights, or using one arm more than another, etc.

Personally, I do not put particular stress upon these malformations, if they can be discovered in time. Nearly all of them can be corrected by judicious exercise. If allowed to increase, however, they invariably lead to spinal disease, or to some functional disturbance of the heart, stomach, or lungs, followed sooner or later by structural changes in these important organs.

Whatever the original cause of these physical defects may be, the immediate cause is a weakness of

the supporting muscles. After the body has once acquired a bias in the wrong direction many exercises otherwise beneficial are likely to be injurious. Among this number are horseback riding, rowing, lawn tennis and military drill. In order that you may see how the last named exercise can prove injurious to imperfectly developed boys I wish to call your attention to the elastic nature of muscular tissue. In order to be as brief as possible, I shall simply quote extracts from the experimental researches described by Rosenthal on this subject, in his admirable treatise on "Muscles and Nerves."

"A muscle dissected from the body is easily extended by a weight, and is extended in proportion as the weight attached is heavier." "The law of elasticity for inorganic bodies is: The tension is directly proportionate to the length of the body extended and to the amount of the extending weights; and that it is also proportionate in inverse ratio to the diameter of the extended body."

It has been found, however, that soft organic bodies, like muscles, are capable of far greater extension than are rigid, inorganic bodies, of equal length and diameter and under the application of equal weight. But the organic body also exhibits another peculiarity. If a weight is attached to a steel wire or some other similar body, the latter extends and retains its new length so long as the weight acts upon it; but as soon as the weight is removed the steel resumes its original length. It is not so in the case of inorganic bodies. When the weight is removed from an organic body it immediately becomes shorter, but does not entirely revert to its original length, it attains the latter very gradually and in the course of many hours. This phenomenon is known as the gradual extension of organic bodies. Muscle, in common with all soft bodies, exhibits another variation from the bearing of rigid bodies. That is, muscles are comparatively more extensible by light than by heavy weights. For instance, if the extension of a muscle when carrying ten grammes is five millimetres, when carrying a weight of twenty grammes it is not ten millimetres but only eight; when carrying thirty grammes it is only ten millimetres, and so on.

Another striking fact in connection with the physiology of the muscles has been brought out by the experiments of Weber. He has proven conclusively that muscle is further extended by the same weight when it is in a state of activity than when it is quiescent. Here again, we have the experiments of the physiological laboratory confirming the facts that have been brought under frequent observation in the gymnasium. We can now readily understand, how carrying the head forward would soon extend the muscles of the neck, how carrying a gun, though a light one, with the same arm for any length of time would gradually extend the muscles, and elongate the arm, droop the shoulder and crook the spine. This is, in fact, what military drill tends to do in all cases, and what it invariably does do when there is a bias in that direction, when the boy is tall and slender, or the muscles weak and flabby, and there is no effort made to correct the evil tendency.

If it is deemed advisable to make military drill a department of school instruction, I see no reason why a system of corrective exercises cannot be introduced as an accompaniment. If, on the other hand, military discipline alone is required, this can easily be applied to a system of class gymnastics or free exercises, as shown in the schools of Germany. After taking the most favorable view possible of military drill as a physical exercise we are led to conclude that its constrained positions, and closely localized movements do not afford the essential requisites for developing the muscles, and improving the respiration and circulation, and thereby improving the general health and condition of the system. We must further conclude that in case of any malformation, local weakness or constitutional debility, the drill tends, by its strain upon the nerves and prolonged tension on the muscles to increase the defects rather than to relieve them.

Finally, if the ultimate object of the drill was to prepare young men for the life and duties of a soldier, we should be forced to conclude that the drill itself would still be defective as a means of developing the chief requisites for men in that profession. This defect, we are pleased to state, is recognized by the great military nations of Europe and measures are taken to give all the recruits from three to twelve months' gymnastic training to develop them as *men* before they are expected to conform to the requirements of the soldier.

Prof. Hitchcock, of Amherst College, was introduced, and said that he had but few remarks to add to what had been said. The subject of physical training is a broad one, and concerns all the pupils in all our schools. It is not the introduction of all forms of training that is needed, but of chosen and carefully adapted forms of exercise for the conditions arising in the individuals before us. A library has been said to be not a collection of books, but a selection of books; and so the features of physical training may be very different in relation to the special requirements of each person.

The average college boy is a rather hard animal to drive, and is apt to kick over the traces. He must be catered to in the laying out of irksome duties, so as to get as much pleasure with the labor as possible. Military drill is objectionable on account of the character of the exercise, and on account of the discipline. If we desire to make a mere automaton of a boy, to deprive him of his thinking faculties, to make him dependent on orders and directions of others, then military drill is a good thing. Is this system the right one? I think not. Every boy is examined in all the branches of his curriculum, and his progress is in accordance to carefully prescribed directions. The same should be true in relation to physical training as is true in relation to mental or moral training. Boys should not be turned into gymnasium as calves are turned into a pasture, but should be carefully overlooked and guided, in order that the very means for their physical benefit may not become an agent of harm, or positive danger.

Gen. Hobart Moore, Instructor in Military Drill in the public schools of Boston, said that he had been much interested in the exhibition of the drill, and

not less amused. He would not be surprised to find curvature of the spine, or any other deformity resulting from the exercise of the drill as this was done before the audience. In actual practice, however, the evils represented and charged to the drill, are not observed. The statement has been made that the drill is confined to one side of the body. This is not so. The drill is made to embrace movements in exercise of both sides of the body, and the result of its employment is not a symmetrical development of the body of the boy. In addition to this, the actual practice of the drill is preceded by exercise in the "setting-up drill;" so that every possible source of defective or restricted exercise is removed.

Gen. Moore stated that he has pupils in Harvard and in other schools, and is constantly receiving most encouraging reports from them as to the influence of the drill-movements, and their relation to the bodily health and well-being of the pupils. In all the schools where the drill has been introduced, the boys are anxious to join, and often it is necessary to refuse permission to ambitious youths on account either of the small size of the applicants, or on account of their years. The parents of boys often come to the school to beg permission for their boys to join in the drill. An experience of twenty-five years in the practical teaching of the drill has convinced him that it is not only not harmful, but it is of positive advantage both in relation to the physical development of the boy's constitution, and also in relation to the training of the mental and moral nature. If this were not so, the drill would long ago have been discarded from the curriculum of our public schools. The striking rarity of accidents in the exercises of the drill is another feature to recommend it. In relation to the boys who are excused from drill, the fact is that more boys are exempted from drill on account of the effects produced by the abuse of gymnastics, than from all other causes put together. The boys themselves always want to drill. Objection to the drill does not come from those interested in it, the boys themselves, but from those who have no actual information on the subject, who are striving to upset an institution which the experience of years has found to be productive of great good, and to be free from serious harm.

Dr. J. P. Reynolds said that he was at one time in Frankfort, and had observed the enthusiasm with which physical culture is there carried out. It is strange that in a city one-fifth the size of Boston, so much can be done and is done, and in our own city we have nothing. The experience of seventy years in Prussia should teach us something. We have retreated a long way toward barbarism, by our apathy in regard to the physical welfare of our children, and by neglecting them we lay the foundation for lives of feebleness and incapacity. Nobody who has observed the people of Germany can have failed to notice how much stronger and robust the population as a rule is in that country, than is the fact here. We are, as a nation, becoming effeminate and weak. The lessons of other countries are without influence upon our dulled faculties, and we have to look forward to an increased deterioration in the stock of health and vitality as the logical result of our stupidity. In Germany, even the son of the Emperor was not spared the entire *regime* of the course for physical training laid down for the preparation of recruits for the regular army. Every man must perform this duty to his physical system before he is considered capable of attempting the discharge of his duties towards his country.

Dr. D. F. Lincoln said that one important point had not been touched upon in the course of the present argument, and that is the fact that the girls need careful physical training as much as the boys, and that they have even less opportunity for exercise than have their more fortunate brothers. The people are not doing their whole duty by their children until they have given them the advantages of physical culture commensurate with their mental development.

Dr. C. F. Withington, in closing the debate, spoke of the lateness of the hour, and said that he would not prolong the discussion, although there was much to be said. He observed that the exercises of this meeting had demonstrated that the simplest of apparatus could be made serviceable for a very comprehensive system of physical culture, and vastly improve upon the form of exercises now in vogue. There could be no question that the drill leaves much to be desired as a means of physical development, which could be supplied by the simpler and less expensive form of exercises connected with the courses of physical culture as shown at this meeting. When our school authorities have attended to the first requirements for physical culture of the whole body of pupils, male and female, then if there is any time or any money to spare let them think of supplementing the function of the State in the maintenance of a militia.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, September 2, 1886.

The President, B. F. Baer, M.D., in the Chair.

INTUBATION OF THE LARYNX.

Dr. E. E. Montgomery exhibited a set of Dr. O'Dwyer's tubes, the gag, and the instruments for the insertion and removal of the tubes. He related the history of a case of laryngeal diphtheria in which they were successfully used to relieve asphyxia. In consequence of an over-dose of stimulant the tube was coughed out and had to be replaced, as the child could not have breathed without it. The doctor contrasted the difficulties of tracheotomy with the comparative ease of introduction of the tubes; and called attention to the want of success attending the former operation, as parents will not give an early consent to its performance. He had performed eleven tracheotomies before he had a single successful case, and as his first intubation case has been a success, he is strongly in favor of the new operation.

Dr. M. Price reported a case of

REMOVAL OF THE OVARIES FOR UTERINE FIBROID.

The case is one of interstitial uterine fibroid; the

uterus being about the size of one at the third month of pregnancy, irregular in outline and nodular, and pelvic-bound. The ovaries were displaced backwards and incarcerated between the uterus and sacrum, making it difficult to remove them. The woman had been suffering four years, and a confirmed invalid during the the last one, unable to do any work. Her marital relations had been suspended for over a year, owing to the sickening pain attending any attempt at sexual intercourse. She had to walk with great care and lie on her stomach while resting or sleeping to prevent a throbbing and sickening pain in the pelvis. A rather exceptional and interesting feature of the case was the absence of profuse and irregular bleeding. He menses were irregular, scant and pale. Her chief suffering was from engorgement of and pressure upon the ovaries. All kinds of treatment had been persevered in for the last three years, and the patient grew worse. She demanded operative procedure for her relief, preferring the risk of death to her suffering. The ovaries were removed July 9, 1886. They were hypertrophied. They were found low down behind the uterus. They contained numerous pus pockets. The tubes were enlarged but did not contain pus. With the exception of a suture abscess she did perfectly well, and made a perfect recovery. She is now able to look after her domestic affairs and is free from pelvic pain and soreness. No examination of the condition of the uterus has been made since the operation.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Children of the Poor—Laparotomy for Gunshot Wound of Intestines—A New Infirmary for Children—New Jersey State Board of Health and Vital Statistics—Precautions Against Live-burial—False Death Certificates—Resignation of Dr. E. M. Moore.

During the past summer the city has done less than usual for the children of the poor, and consequently more work than ordinary has been thrown upon the private charities which interest themselves in the little ones. For the first time in a number of years the authorities failed to make the appropriation for the maintenance of a special summer corps of visiting physicians among the tenement-house population. This service has always been attended with very good results; one of its chief merits, perhaps, being the fact that incipient cases of diarrhœal disease are frequently detected in children whose parents might otherwise have unthinkingly allowed the trouble to go on until it would have been too late for medical aid to be of any service. In consequence of this neglect of the authorities, the Children's Aid Society, which has always maintained a corps of visiting physicians, has had to materially increase the number of these this season. The work of the Children's Aid Society's physicians, however, differed from that of those employed by the city in the fact that while the former only visit the tenement houses when summoned to see special cases of sickness among the children, the summer corps of the Health Department are required to visit the tenement districts systematically, and specially look up all cases of illness, prescribing for every sick child that they meet which is not already under medical treatment. The summer, however, has been a comparatively cool one, and as the death-rate among young children is always in a direct ratio to the heat when the latter is at all extreme, the infant mortality has not been as large as would otherwise have been the fact. Probably the largest number of deaths in the city occurred in the hot weather in the early part of July, when in one week there were reported 1111, of which no less than 683 occurred in children under five years of age.

The St. John's Guild has also been unusually active in its work, and has done a vast amount of good through its seaside nursery and the excursions of its floating hospital. It also has had a corps of summer physicians of its own this year, who have distributed a large number of tickets for these, and in consequence of the weather continuing warm in September, the trips of the floating hospital have been maintained later than usual. The expenses of each excursion amount to about $250.

Quite late in the season the Charity Organization Society also bestirred itself in behalf of the sick children, and through Mr. Fairchild, Acting Secretary of the Treasury—who was formerly its President—obtained permission of the War Department to erect a sanitary tent on Bedloe's Island (where the Bartholdi statue of liberty stands) for the purpose of affording a few hours of fresh air from time to time for mothers with feeble infants.

Dr. W. T. Bull, who added so largely to his reputation by his successful laparotomy in a case of perforating gunshot wound of the abdomen, in which the intestines were pierced in several places, has now again repeated this success. The operation was performed at the Chambers Street Branch of the New York Hospital, upon a sailor who was shot with a pistol, the ball entering the abdomen two inches below and somewhat to the left of the umbilicus. On opening the cavity it was found that the small intestine was perforated in two places, and that the sigmoid flexure of the colon and the sigmoid mesocolon were also wounded. Much blood had been poured out, and the operation, which was undertaken within two hours after the receipt of the injury, lasted about an hour and a half. The recovery was rapid and satisfactory.

A new Infirmary is now in course of construction at the Five Points House of Industry, the erection of which has been rendered necessary by the passage by the Legislature, at its last session, of the law requiring the isolation of all children affected with contagious eye diseases. The corner-stone was laid a short time since with appropriate services, and in his remarks the Superintendent, Mr. Wm. Y. Barnard, spoke particularly of the bad name which the spot had always borne, not only since Dickens had por-

trayed it in his "American Notes," but even from early colonial periods. He told how, in early Dutch history, it was the scene of the murder of Indians, and how, in 1700, a number of slaves, suspected of planning an insurrection, were executed and their bodies burned there. As the city grew to be a great metropolis, many a murder had been committed within its bounds, until it was hardly safe to pass through even by day. The man who, forty years ago, had predicted a scene like this, he said, would have been deemed a lunatic. The first effort to work a reform was made in 1850, by the Rev. L. M. Pease and his wife, who were suspected, by the parents of the children they wished to aid, of planning to kidnap them, and all other sorts of evil designs. But they persevered in the good work, and out of their small beginnings grew the present noble House of Industry. The new Infirmary will be four stories in height, 25 feet wide, and 80 feet deep.

The State Board of Health of New Jersey has just issued a series of instructions to the local boards throughout the State which are of considerable importance. The State Board is determined to enforce, as far as possible, a compliance on the part of all physicians within its jurisdiction with the statutes requiring the prompt registration of births, and requests that the local boards shall use their best endeavors to secure evidence against those neglecting to do this. It also requests that a proposed system, by which a full and accurate report may be obtained of all houses, their condition and surroundings, in which contagious disease exists, or has existed, with a view to securing more positive evidence concerning the ownership, and the enforcement of appropriate sanitary improvements. The State Board urges, in addition, the appointment of a competent veterinary surgeon whose duty it shall be to visit and inspect every dairy at least twice in each year; a measure which is of special importance at the present time in consequence of the increasing prevalence of pleuro-pneumonia among cattle.

Some of the philanthropic citizens of Brooklyn have conceived a plan by which the fear of being buried alive, which has always seemed to haunt the minds of certain individuals, may be done away with. It is proposed to incorporate a company for the purpose of erecting edifices in the suburbs, probably in the vicinity of the large cemeteries, for the temporary reception of dead bodies. The coffins will be left open, and the bodies will be allowed to remain until evidences of decomposition have become apparent, or, to use somewhat of a Hibernicism, until they show signs of life. Means will be provided that if a person in any of the coffins should be alive and recover consciousness, he could immediately communicate with an attendant and receive the proper aid; though the exact manner in which the supposed corpse shall make known the fact of his resuscitation has not as yet been decided upon. Whether the proposed project will be practically carried out or not appears at present to be somewhat problematical; though the legal gentleman who has been engaged to secure the incorporation of the company states that within the next six months the scheme will be in working order.

It has been reported that some of the physicians in the lower part of the city have of late been induced, either from a sense of pity, for a money consideration, or the sake of currying favor, to make out false certificates of death in the case of individuals dying of phthisis who were insured in cheap life insurance companies, which reserve the right to pay only half the amount of the policy to the beneficiary in the event of the person insured dying of consumption. It is to be hoped, for the honor of the profession, that the number of such medical men is exceedingly small; though that the thing actually occurs sometimes seems evident from the fact that a reputable physician, who reported to the Bureau of Vital Statistics the fact that he was asked by an undertaker to make out such a false death certificate, is said to have remarked to a reporter who called to see him in reference to the circumstance: "I can't afford to talk about this matter unless the newspapers are willing to pay me to move out of this neighborhood."

Very great regret is felt at the resignation from the State Board of Health of Dr. E. M. Moore, which has recently been announced. Dr. Moore, who is one of the leading medical men of the State and the country, and last autumn was elected President of the New York State Medical Association, was one of the original members of the Board, and his wise counsels in its deliberations, and active labors in its behalf, will be very severely missed in the future. It is stated that, in addition to the too great tax which it imposed upon his time, one reason for his resignation was that he felt the Board to be too much hampered in its proposed plans on account of the lack of funds which he considered essential for carrying out its legitimate and proper work. P. B. P.

CURABILITY OF PHTHISIS.

TO THE EDITOR OF THE JOURNAL:

Dear Sir:—During the past year several valuable articles and editorials have appeared in THE JOURNAL on this subject, and I desire to contribute the report of a case:

In 1852 Mr. John Tyler, of the firm of Williams & Tyler, merchant tailors of this place, consulted me for a cough which had been troubling him for nearly a year—latterly accompanied with hectic and night-sweats, and loss of flesh. Suspecting tubercle, I made a careful and very thorough physical exploration of his chest, and found incipient phthisis; a small cavity in the apex of his right lung. All the symptoms, rational and physical, warranted the diagnosis. My advice to Mr. Tyler was to give up his business at once, and go to Aiken, South Carolina, the St. Johns River, Florida, or San Antonio, Texas. His partner, being loth to give him up, persuaded him to go to Nashville and consult the late Dr. Jennings, whose age, experience, and reputation at that time placed him in the very fore-front of the profession in this State, if not in the entire South. Upon a thorough and very complete examination of his case, Dr. Jennings fully confirmed my diagnosis, and advised him to go to San Antonio, Texas, to buy him a wagon

and team, and work for a living, spending all the time possible in the open air.

He remained there eight years, and returned here a perfectly sound man, with full recovery of his average weight, and capacity for any amount of physical exertion without undue fatigue or shortness of breath. The stethoscope revealed a flat dulness, characteristic of chalky metamorphosis. Purchasing a farm in the country, he led an active life for twenty years.

In 1880, Mr. T. came into my office to be examined for membership in the Order of the Knights of Honor by my partner, Dr. B. J. Harlan, who is examining surgeon to the Order. I said nothing to Dr. Harlan about Mr. Tyler's medical history, as detailed above, but curiously awaited events. Dr. Harlan having made his usual examination, seemed not satisfied, but requested him to accompany him into an inner room, and strip himself for a more thorough and critical examination. Upon completing this he requested him to return next morning, as he was not quite ready to recommend him for membership. As soon as he left our office, Dr. Harlan explained to me that his difficulty in the case was an unaccountable opaqueness, so to speak, *in the top of his right lung*, and that if he had any history of phthisis, at any time, he would not hesitate to pronounce it a *dry cavity*.

I immediately recounted the previous history of the applicant, as imperfectly detailed above, he expressed himself perfectly satisfied, filled up his application, fully recommending him for membership. He was duly elected, and stands to-day a first-class risk of the Order. Permit me to say in conclusion, in all candor, that if this is really, as it seems to be, a case of *cured phthisis*, it is the only one that I am willing to report as such, out of a very large mixed practice of forty years. Yours very truly,

J. M. TOWLER, A.M., M.D.

Columbia, Tenn., July 16, 1886.

NEW INSTRUMENTS.

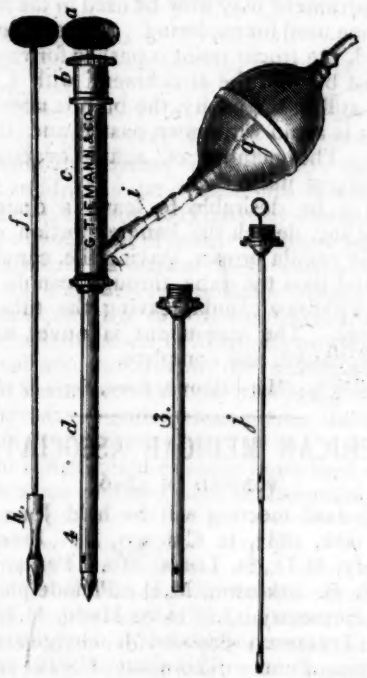
NEW IMPROVED COMBINED TROCAR AND CANULA AND ASPIRATING NEEDLE.

BY H. LANDIS GETZ, M.D.,
OF MARSHALLTOWN, IOWA.

I take pleasure in presenting and recommending to the profession a New *Improved* Combined Trocar and Canula and Aspirating Needle. The object of this instrument is to overcome the disadvantages of the common trocar and canula and common aspirating needle and yet to preserve the advantages and applicabilities of both, and at the same time combining the instruments in a neat and compact manner and at reasonable expense.

The advantages of the instrument will readily suggest themselves, and I will therefore give only a brief description and a few suggestions concerning its application.

With the instrument for general use there are four sizes of canulæ—the smallest of which is a part of the aspirating needle and is not larger in diameter than a common hypodermic needle or small, old style, aspirating needle—in which the cutting point cannot be removed after having entered the cavity. The other three sizes of canula are used, in general, as required by the varying cavities to be evacuated.



A, button which screws on trocar rod F, which is used as a handle and also prevents the trocar from passing too far through the canula. To rod F are attached the three largest sizes of trocar tips. H, one of the tips as screwed on the rod F. C, handle portion of canula to which are attached by screw-joint the larger sizes of canula and the smaller or aspirating size J. E represents the outlet from handle portion of canula. I, a short piece of glass tubing through which fluid is seen to pass. G, a reversible bulb which may be used for exhausting or injecting. B, cap attaching to C, by screw joint into which is placed a small rubber disk, cut from rubber bandage material, through which pass the exploring trocar, or the larger trocar rod. 4, one of the openings, of which there are several in the end of each canula, to allow the fluid to pass, which will aid in determining the entrance of the sac. J, exploring canula with trocar needle passed through it. This needle is of the same length as the parts J and H combined, and when J is used the needle is entered in the opening in B, passed through the small rubber disk and then passed on through C and J until the needle point projects about ⅓ inch beyond the canula.

The exploring trocar being too small in calibre to admit of grooving or perforating it, is flattened upon one side in such a manner that when it is passed through the exploring canula a groove is formed between the needle and canula.

To use the instrument for exploring place imperforate rubber disc in cap B and screw tightly on to C and attach canula F to C. Now enter exploring trocar at opening in B and pass it through until the point emerges about ⅛ inch at end of canula F. The instrument is now ready for use. After having entered the sac withdraw the needle until the point of it has passed the outlet E. The bulb G or an aspirating pump may or may not be attached to E as pleases the operator.

The exploration being completed and a more rapid evacuation being desired, the instrument is withdrawn, the needle removed and the exploring canula J de-

tached from C. J without trocar tip attached is now passed through opening of same rubber disc in B, and passed through until A comes in contact with B. Now screw on J such sized trocar tip as you desire and slip over a corresponding size of canula and screw the same on to C.

The instrument may now be used in the same manner as when used for exploring. The sac having been evacuated, the trocar point is pushed forward into the canula just beyond the attachment with C—the instrument still in the cavity, the bulb is now reversed, the trocar is again withdrawn past E and the cavity injected. The manner of again evacuating will readily suggest itself.

Should it be desirable to leave a drainage-tube within the sac, detach the handle portion of canula C from the canula proper, leaving the canula still in the sac, and pass the tube through canula into sac and now withdraw canula, leaving the tube dipping into the sac. The instrument is novel, neat, compact, inexpensive, and complete.

204 E. Main St., Marshalltown, Iowa, Sept. 1, 1886.

AMERICAN MEDICAL ASSOCIATION.

FORMED IN 1846.

Next annual meeting will be held June 7th, 8th, 9th, and 10th, 1887, in Chicago, Ill. President, E. H. Gregory, M.D., St. Louis, Mo. Permanent Secretary, W. B. Atkinson, M.D., Philadelphia, Penn. Assistant Secretary, J. Nevins Hyde, M.D., Chicago, Ill. Treasurer, Richard J. Dunglison, M.D., Philadelphia, Penn. Librarian, C. H. A. Kleinschmidt, M.D., Washington, D. C. Chairman of Committee of Arrangements, Charles Gilman Smith, M.D., Chicago, Ill.

All membership dues should be sent direct to the Treasurer, RICHARD J. DUNGLISON, M.D., lock box 1274, Philadelphia, Penn.

MISCELLANEOUS.

AMERICAN PUBLIC HEALTH ASSOCIATION—RAILROAD RATES.—The fare from Chicago to Toronto is $14. Delegates to the Convention of the American Public Health Association who pay full fare in going to Toronto will be returned from Toronto at one-third fare. Please be particular to take a certificate from the agent of whom you purchase your ticket from Chicago to Toronto, which certificate should be signed by the Secretary of your meeting at Toronto, certifying that you had been in attendance upon the convention. Upon the presentation of the certificate, thus certified to, to the ticket agent at Toronto, he will furnish you with a ticket for the return journey at one-third fare. Geo. H. Daniels, 205 La Salle St., Chicago.

THE VOLTA PRIZE.—*Le Progrès Médical* (Aug. 7) reports that the French Minister of Education has just fixed the date of competition for the Volta Prize. It is of the value of £2000, and was instituted by a decree dated June 11, 1882, in favor of the author of a discovery which shall render electricity economically useful in one of the following applications: As a source of heat, of light, of chemical action, of mechanical power as a means of transmission of despatches, or in the treatment of disease. The competition will remain open to June 30, 1887, and the prize will be awarded the following December. Scientists of all nations may compete. A commission, nominated by the Minister of Education, will be charged with the examination of the discovery specified by each competitor, with a view to determine if it fulfil the required conditions.—*Lancet*, August 14, 1886.

THE INTERNATIONAL MEDICAL CONGRESS to be held at Washington, in September, 1887, promises to be a great success. It is under the patronage of the President of the United States, the Secretary of State, the President of the Senate, and the Speaker of the House of Representatives. The president elect is Dr. N. S. Davis, Professor of the Principles and Practice of Medicine in Chicago College. The list of vice-presidents includes the following distinguished names: Mr. Richard Quain, Professor Annandale, Professor Burdon-Sanderson, Dr. Ricord of Paris, Grant Bey, Dr. Klein, Dr. Dujardin-Beaumetz, of Paris; Dr. Murrell, Professor von Hebra, of Vienna; Professor Unna, of Hamburg; Dr. C. D. F. Phillips, Professor von Mosengeil, of Bonn; Professor Sayre, of New York; the Baron H. Larrey, of Paris; Professor T. R. Fraser, of Edinburgh; the President of the American Medical Association, the Surgeon-General of the United States Army, and the Surgeon-General of the United States Navy.—*The Daily Telegraph*, (London.) August 20, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 11, 1886, TO SEPTEMBER 17, 1886.

First Lieut. Philip G. Wales, Asst. Surgeon, resignation accepted by the President, to take effect Nov. 5, 1886. (S. O. 212, A. G. O., Sept. 11, 1886.)

First Lieut. F. V. Walker, Asst. Surgeon, assigned to temporary duty at Ft. Adams, R. I. (S. O. 131, Div. of the Atlantic, Sept. 8, 1886.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING SEPTEMBER 18, 1886.

Simons, M. H., P. A. Surgeon; E. Norfleet, P. A. Surgeon, detached from the "Alert" and placed on waiting orders.

Bogert, E. S., Medical Inspector, ordered to Navy Yard, New York, Sept. 28, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWO WEEKS ENDED SEPTEMBER 18, 1886.

Austin, H. W., Surgeon, granted leave of absence for thirty days. Sept. 16, 1886.

Goldsborough, C. B., Surgeon, promoted and appointed Surgeon from Oct. 1, 1886. Sept. 9, 1886.

Yemans, H. W., P. A. Surgeon, granted leave of absence for ten days. Sept. 16, 1886.

Bevan, A. D., P. A. Surgeon, promoted and appointed P. A. Surgeon from Sept. 1, 1886. Sept. 7, 1886. Granted leave of absence for thirty days. Sept. 7, 1886.

Glennan, A. H., P. A. Surgeon, promoted and appointed P. A. Surgeon from Sept. 1, 1886. Sept. 7, 1886.

Norman, Seaton, Asst. Surgeon, to proceed to Vineyard Haven, Mass., for temporary duty. Sept. 9, 1886.